Earthood

Verification report form for GS4GG Programme of Activity

(Gold Standard for the Global Goals)

BASIC INFORMATION	
Title of the GS4GG Programme of Activity (PoA)	Improved Cookstove and Safe Water Programme
Reference number of the Programmes of Activity (PoA)	GS 11189
Version number of the verification and certification report	1.1
Completion date of the verification and certification report	12/04/2023
GS ID (s) of VPAs under PoA	VPA ID: GS11289, GS11290, GS11291, GS11292, GS11293, GS11294, GS11295, GS11296, GS11297, GS11298, GS11299, GS11300, GS11301, GS11302, GS11303, GS11304, GS11305
Version number of the monitoring report to which this report applies	3.0
Completion date of the monitoring report to which this report applies	01/03/2023
Monitoring period no. and duration	2nd 01/01/2022– 30/06/2022 (inclusive of both days)
Date of project design certification	02/02/2022
Crediting period of the PoA corresponding to this monitoring period	01/01/2021 – 31/12/2025
Project Representative	Impact Carbon LLC Impact Water LLC
Host Party	Kenya
Applied methodologies and standardized baselines	"Emission reductions from Safe Drinking Water Supply" Version 1.0 – 03/05/2021.
Activity requirements applied	☒ Community Services Activities ☐ Renewable Energy Activities ☐ Land Use and Forestry Activities/Risks & Capacities ☐ N/A
Product Requirements applied	☒ GHG Emissions Reduction & Sequestration ☐ Renewable Energy Label ☐ N/A

Estimated amount of annual average GHG emission reductions	468,537 tCO_2e

Sustainable Development Goals Targeted	SDG Impact	Total amount of certified SDG impact (as per approved methodology) achieved in this monitoring period (01/01/2022–30/06/2022)	Units/Products
SDG 13: Climate Action	13.2.1 Amount of CO2e emissions reduced by the project per year	379,129	tCO_2e
SDG 1: No Poverty	1.4.1 Proportion of population living in households with access to basic services Indicator: Indicator: Total number of premises (Schools / institutions) with at least one WPS distributed / installed under the project	9,969	Number
SDG 3: Good Health and Well Being	3.9.2 Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe Water, Sanitation and Hygiene for All (WASH) services Indicator: % sampled Schools / institutions reporting reduction in incidence of diarrhoea and water borne diseases etc. after shifting to the project WPS	94.39%	Percentage
SDG 6: Clean Water and Sanitation	6.1.1 Proportion of population using safely managed drinking water services Indicator: % of WPS distributed/installed providing safe drinking water quality	89.95%	Percentage
SDG 7: Affordable and Clean Energy	7.1.2 Proportion of population with primary reliance on clean fuels and technology Indicator: % Schools / institutions reporting an operational WPS in project	93.17%	Percentage
SDG 8: Decent Work and Economic Growth	8.5.1Average hourly earnings of female and male employees, by occupation, age and persons with disabilities Indicator: Number of male / females employment created by project	17	Number

Name and UNFCCC reference number of the VVB	Earthood Services Private Limited E-0066

Name, position and signature of the approver of the verification report	 Managing Director Dr. Kaviraj Singh

SECTION A. Executive summary

The programme of activity “Improved Cookstove and Safe Water Programme” involves distribution of low GHG Water Purification technologies (WPS) to schools in Kenya. The PoA is using carbon finance to support local partners engaged in different activities like production, distribution, and maintenance of various product technologies particularly WPS. This programme includes technologies, designed to reduce GHG emission and supply safe water to institutions, which are efficient and meet the technology and measure requirements of the applied methodology: Emission reduction from Safe Drinking Water Supply, version 1.0. The distribution of WPS has provided institutions with safe and clean drinking water and no incidences of water borne diseases. This has also reduced the consumption of non-renewable biomass resources or fossil fuel for cooking purposes as well as eliminate the use of non-renewable resources or fossil fuel for water boiling. The PoA will also improve the indoor air quality and health of women and children as a co-benefit.

The VPAs under current verification are: GS11289, GS11290, GS11291, GS11292, GS11293, GS11294, GS11295, GS11296, GS11297, GS11298, GS11299, GS11300, GS11301, GS11302, GS11303, GS11304, GS11305

Total annual average emission reductions for this crediting period are 379,129 tCO2e.

The PoA has been registered under GS4GG (GSID 11189) and the CME is Impact Carbon LLC and VPA Implementer is Impact Carbon LLC.

Scope of Verification

The scope of the services provided by the Earthood Services Private Limited is to perform verification of the PoA. The scope of verification is to assess the claims and assumptions made in monitoring report /5/ against the GS4GG criteria, UNFCCC criteria, including but not limited to the Gold Standard Principles & Requirements/1/, Gold Standard Programme of Activity Requirements/11/, Gold Standard Community Services Activity Requirements/12/, CDM PS for PoA/3/, CDM VVS for PoA/4/ and other relevant rules and requirements established for Gold Standard.

The scope of the services provided by Earthood Services Private Limited for the project is to perform verification of GS4GG programme of activity. The scope of verification is to assess the claims and assumptions made in the monitoring report /5/ against the GS4GG principles and requirements /1/ criteria and GS4GG VVB requirements /2/, including but not limited to, CDM PS for PoA /3/, CDM VVS for PoA/4/, applied methodology /8/ and other relevant rules and requirements established for GS4GG PoA.

Verification Process

This verification is an independent and objective review for determination of the monitored reductions in GHG emissions. The verification includes the implementation and operation of the PoA as reported in the registered PoA-DD, VPA-DD and monitoring report The verification process is undertaken by verification team that involves the following:

- The desk review of documents and evidence submitted by the project participant in context of the GS4GG criteria along with reference CDM rules and guidelines issued by CDM EB,
- Undertaking on-site visit, interview or interactions with the representatives of the CME and VPA Implementer,
- Reporting audit findings with respect to clarification and non-conformities and the closure of the findings as appropriate.
- Preparing a draft verification report of GS4GG programme of activities period complying with the GS4GG principles and requirements.
- Technical review of the draft verification opinion along with other documents as appropriate by an independent competent technical review team finalization of the verification opinion (this report)
- An independent technical review team reviews the verification report made by the verification team. After the final report is accepted by the Technical Reviewer it is then approved by Earthood Services Private Limited which is processed further according to the GS and CDM procedures.

Conclusion

The review of the monitoring report, supporting documentation and subsequent follow up actions have provided ESPL with sufficient evidence to determine the fulfilment of stated criteria. Earthood is of the opinion that the PoA “Improved Cookstove and Safe Water Programme” (GS ID: 11189) meets all the GS requirements and has correctly applied the GS approved methodology, Emission reduction from Safe Drinking Water Supply, version 1.0/8/.

The GHG emission reductions were calculated correctly based on the approved methodology "Emission reduction from Safe Drinking Water Supply, version 1.0"/8/ and the monitoring plan contained in the registered PoA-DD/9/ and VPA-DD /10/.

Earthood Services Private Limited can certify that the emission reductions achieved in the monitoring period 01/01/2022– 30/06/2022 (inclusive of both days) by GS PoA "Improved Cookstove and Safe Water Programme" (GSID: 11189) amount to 379,129 tCO2e. Therefore, this is being submitted for request for issuance, as per GS4GG and UNFCCC procedures.

SECTION B. Verification team, technical reviewer and approver

B.1. Verification team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of VVB or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interview(s)	Verification findings
1.	Team Leader	IR	Mahala	Deepika	Central Office	Y	Y	Y	Y
2.	Verifier	IR	Kalita	Jahnabi	Central Office	Y	N	N	Y
3.	Methodological Expert	IR	Mahala	Deepika	Central Office	Y	Y	Y	Y
4.	Technical Expert (TA 3.1)	IR	Mahala	Deepika	Central Office	Y	Y	Y	Y
5.	Local Expert	EI	Njeri	Virginia	Central Office	Y	Y	Y	Y

Technical reviewer and approver of the verification report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of VVB or outsourced entity)
1.	Technical reviewer and TA expert to TR (TA 3.1)	IR	Gautam	Ashok	Central Office
2.	Approver	IR	Singh	Kaviraj	Central Office

SECTION C. Application of materiality in conducting the verification

C.1. Consideration of materiality in planning the verification

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
1.	Observational error by monitoring survey staff of CME/VPA implementer while recording the responses of users in relation to survey parameters	High	The survey is conducted for representative samples of population, which may impact the population significantly. Surveyors may be unsupervised at the site.	Verification team randomly selected the samples from CME surveyed sampled WPS. The recorded survey forms by CME were checked with VVB on-site audit inspection observations. The verification team also interviewed the monitoring staff and checked their training records.
2.	Error in transferring the recorded data to ER sheet	Medium	The procedure for transferring the recorded break-up sheet readings to the spreadsheet is manual in nature thus increasing the chances of error. However, CME has implemented internal quality checks to ensure prevention of any such potential error in the prepared ER calculation sheet /15/.	The surveying and monitoring personnel assigned for PoA implementation has been trained and certified. The interviews conducted during on-site audit confirms the regular training as per the monitoring plan and implementation procedures to reduce the risk of oversight or data transfer. All the values in ER calculation sheet have been verified from supporting documents and survey data forms. None of the discrepancies was reported due to transferring of data.
3.	Calculation Errors	Medium	The process is manual and therefore there is potential risk of errors / omissions/misstatements.	All calculations were checked by verification team concerning applicable requirements under various documents viz., methodology, PoA DD/9/ and VPA-DDs /10/.

C.2. Consideration of materiality in conducting the verification

Based on the review of ER sheet, it can be confirmed that the actual individual and aggregated material error is determined for the PoA as per GS requirements. The verification team has conducted a complete verification of all the information presented in the monitoring report and data monitored as presented in the emission reduction calculation spread sheet /15/. There are no material errors, overestimation of ER, omission, or misstatement.

SECTION D. Means of verification

D.1. Desk/document review

The verification of the information of the PoA was performed through the document review including review of monitoring report /5/ Version 3.0 dated 01/03/2023. Additionally, cross checks were performed for

information provided in the monitoring report using other source of information, the verification team's sectoral or local expertise and, if necessary, independent background investigations.

The desk review involves:

- A review of the data and information presented to verify their completeness.
- A review of the monitoring plan, the monitoring methodology including applicable tool(s) and, where applicable, the applied standardized baseline, paying attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the quality assurance and quality control procedures.
- A review of calculations and assumptions made in determining the GHG data and emission reductions.
- An evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.

The list of documents reviewed during the verification is provided under appendix 3 of this report.

D.2. On-site inspection

Duration of on-site inspection: 11/10/2022-13/10/2022				
No.	**Activity performed on-site**	**Site location**	**Date**	**Team member**
1.	Opening Meeting	Kenya	11/10/2022	Deepika Mahala and Virginia Njeri
2.	Implementation and operation of project activity (project boundary, project technology) as per registered PDD	Kenya	11/10/2022-12/10/2022	Deepika Mahala and Virginia Njeri
3.	Management and monitoring procedures, data collection and archiving systems followed at project site	Kenya	11/10/2022-12/10/2022	Deepika Mahala and Virginia Njeri
4.	Interview of CME representatives, VPA implementers, monitoring personnel and end-users (as per as sampling plan)	Kenya	11/10/2022-12/10/2022	Deepika Mahala and Virginia Njeri
5.	Management and operational system: Database management, allocation of responsibilities, qualification and training, WPS Distribution, Monitoring survey, internal audit and management review	Kenya	11/10/2022-13/10/2022	Deepika Mahala and Virginia Njeri
6.	Verification checklist: acceptability (or otherwise) of CME's monitoring survey records, compliance of monitoring procedures with registered PoA-DD and applied monitoring methodology.	Kenya	11/10/2022-12/10/2022	Deepika Mahala and Virginia Njeri
7.	Review of monitored data and relevant document in accordance with registered monitoring plan and applied monitoring methodology.	Kenya	11/10/2022-12/10/2022	Deepika Mahala and Virginia Njeri
8.	Review of ER calculations in accordance with applied methodology and relevant tools.	Kenya	13/10/2022	Deepika Mahala and Virginia Njeri
9.	Closing meeting	Kenya	13/10/2022	Deepika Mahala and Virginia Njeri

D.3. Interviews

D.3.1. Interviews with CME and VPA Implementers

No.	**Interviewee**			**Date**	**Subject**	**Team member**
	Last name	**First name**	**Affiliation**			
1.	Turgesen	Mark	Impact Water, Kenya	11/10/2022 - 13/10/2022	PoA Implementation, Operational and Management Framework, sampling surveys, end-users'	Deepika Mahala and Virginia Njeri

					feedback, etc.	
2.	Huelsenbeck	Mark	Acting Country Director, Kenya	11/10/2022 - 13/10/2022	Methodology application, monitoring plan, sampling method, ER calculations	Deepika Mahala and Virginia Njeri
3.	Kumar	Ritesh	Climate Secure India Private Limited	11/10/2022 - 13/10/2022	Methodology application, monitoring plan, sampling method, ER calculations	Deepika Mahala and Virginia Njeri
4.	Lwal	Nancy	School Engagement Officer	11/10/2022 - 13/10/2022	Questions related institution document review on site	Deepika Mahala and Virginia Njeri
5.	Orimba	Mercy	Monitoring personnel, Impact Water	11/10/2022 - 13/10/2022	Questions related institution document review on site	Deepika Mahala and Virginia Njeri
6.	Rariewa	Maureen	Monitoring personnel, Impact Water	11/10/2022 - 13/10/2022	Monitoring system, training sessions, water quality test, hygiene campaign, etc.	Deepika Mahala and Virginia Njeri
7.	Otieno	Eric	Monitoring personnel, Impact Water	11/10/2022 - 13/10/2022	Monitoring system, training sessions, water quality test, hygiene campaign, etc.	Deepika Mahala and Virginia Njeri
8.	Munialo	Anne	Monitoring personnel, Impact Water	11/10/2022 - 13/10/2022	Monitoring system, training sessions, water quality test, hygiene campaign, etc.	Deepika Mahala and Virginia Njeri

Type of questions asked by VVB to VPA Implementers:

a. Role and responsibilities of CME or VPA Implementers in the implementation of PoA
b. Monitoring and implementation process of the PoA
c. Frequency of training conducted for monitoring personnel.
d. Water quality test process
e. How institution received training related to operation of WPS unit?
f. What is annual hygiene campaign and how it is recorded?
g. Any grievance received during current monitoring period.

CME representatives and VPA Implementers explained the monitoring and operation of the PoA. In water hygiene campaign, CME team visits schools and conduct brief discussion about hand washing techniques. SMS campaign carried to all schools. Schools also celebrate water day and hygiene day under this campaign. Monitoring personnel interviewed during on-site audit described the monitoring system and how cleanliness and hygiene is maintained while installing WPS. Data collection procedure followed during monitoring consists of collecting details of school name, address, signature of school representative, unique product ID and other related to monitoring parameters. They talked about water quality test and training received for conducting water quality test and survey. All the details collected were found correct and inline to the monitoring plan described in the monitoring report /5/.

D.3.2. Interviews with end-users

No.	Interviewee		WPS technology	Date	Subject	Team member
	School name	Institution ID				
1.	Pala Primary School-Kisumu	K1836224	Ultra-tab	11/10/2022-12/10/2022	VVB field survey	Deepika Mahala and Virginia Njeri
2.	Omogwa D.O.K Primary School	K1818532	Ultra-tab	11/10/2022-12/10/2022	VVB field	Deepika Mahala and Virginia Njeri

					survey	
3.	Nyabigege D.O.K Primary School	K1818488	Ultra-tab	11/10/2022-12/10/2022	VVB field survey	Deepika Mahala and Virginia Njeri
4.	Nyamagesa SDA Boarding primary school	K1841990	Ultra-tab	11/10/2022-12/10/2022	VVB field survey	Deepika Mahala and Virginia Njeri
5.	Kiongongi DOK Primary School	K1828882	Ultra-tab	11/10/2022-12/10/2022	VVB field survey	Deepika Mahala and Virginia Njeri
6.	Tendere DEB Primary School	K1817637	Ultra-tab	11/10/2022-12/10/2022	VVB field survey	Deepika Mahala and Virginia Njeri
7.	Getono SDA Primary School	K1836439	Ultra-tab	11/10/2022-12/10/2022	VVB field survey	Deepika Mahala and Virginia Njeri
8.	MCK Lewa Downs Primary School	K1808255	Ultra-Flo	11/10/2022-12/10/2022	VVB field survey	Deepika Mahala and Virginia Njeri
9.	Lower Chure Primary School	K1840154	Ultra-Flo	11/10/2022-12/10/2022	VVB field survey	Deepika Mahala and Virginia Njeri
10.	Lower kihara primary	K1840872	Ultra-Flo	11/10/2022-12/10/2022	VVB field survey	Deepika Mahala and Virginia Njeri
11.	Muya Primary	K1846804	Ultra-Flo	11/10/2022-12/10/2022	VVB field survey	Deepika Mahala and Virginia Njeri

Type of questions asked by VVB to end-user institutions:

No.	Questions asked to end-user institutions	Responses Received
1.	To confirm the name of the school, type of school, total population, name and designation of the respondents,	Details correctly provided
2.	Type of product received (UltraFlo or UltraTab) and its unique product ID	Details correctly provided
3.	Primary source of water in the institution and water purification methods	Details correctly provided
4.	Questions related to hygiene indicator covered in this PoA	Positive
5.	Benefits received from WPS unit installed in their institutions	Positive
6.	Training received from CME team and monitoring survey confirmation	Positive
7.	Confirmation of having grievance number for outreaching	Positive

The representatives of each of the institutions interviewed during on-site survey reported that they are happy with the installation of WPS system. They expressed positive feedback and listed benefits of using WPS which includes access to safe water and no incidence of water borne disease. They also reported that they are aware of the water quality test being conducted by the VPA Implementer and the grievance mechanism. No negative response was received during the interviews.

Further, the VVB didn't observe any discrepancy in the school population during the on-site interviews with the school representatives when compared with the CME's survey results. The verified school population for the VVB on-site audit samples has been specified under Appendix 5 of this report.

D.4. Sampling approach

CME's sampling approach

For the purpose of sampling, CME has followed the CDM guidelines for sampling and surveys for CDM project activities and programmes of activities version 9.0 /13/ which is in-line with the registered PoA-DD /9/. The CME has applied Stratified Random Sampling at PoA level for different monitoring parameters as per validated PoA DD /9/ and VPA-DDs /10/. 95/10 confidence precision was applied by CME in the sampling which is appropriate as per the single sampling covering 17 VPAs within the boundaries of PoA geographical location Kenya. Thus, PoA wide single sampling plan was used by the CME.

However, for current MP, PP has sought deviation and applied the sampling plan in line with applied "Emission reductions from Safe Drinking Water Supply" Version 1.0. Please refer section E.6. for details.

VVB's sampling plan:

The VVB applied a sampling approach to confirm the implementation of the VPA and compliance of monitoring plan against the registered documents /9/. The VVB has followed Standard for Sampling and surveys for CDM project activities and programmes of activities, version 9/13/, and applied acceptance sampling in the verification in accordance with para 28. Para 30 and 31 of standard suggests the AQL and UQL and maximum errors which have been followed by the VVB. The table 2 of Standard for Sampling and surveys for CDM project activities and programmes of activities, Version 9/13/, prescribes minimum sample size and acceptance number for discrepant values. Applying para 30 and 31 of the standard, verification will require 11 samples to verify the CME's sampling plan /13/.

The current verification is for VPA ID: GS11289, GS11290, GS11291, GS11292, GS11293, GS11294, GS11295, GS11296, GS11297, GS11298, GS11299, GS11300, GS11301, GS11302, GS11303, GS11304, GS11305. The CME has applied across VPA sampling. The VVB has also apply across VPA sampling.

The verification team has selected the sample size as 11 institutions with 4 institutions extra as backup for the purpose of on-site inspection to check the acceptability of CME's sampling results or otherwise. VVB has taken 2 back up number for each of the technology due to high chances of unavailability of the school representatives on calls.

Sample size: per region

VPA Ref no.	AQL	UQL	Producer risk	Consumer risk	Sample size; min	Acceptance no.
GS11289, GS11290, GS11291, GS11292, GS11293, GS11294, GS11295, GS11296, GS11297, GS11298, GS11299, GS11300, GS11301, GS11302, GS11303, GS11304, GS11305	0.5%	20%	10%	10%	11	0

These 11 systems are divided as per the distribution ratio of different kinds of units:

WPS Unit type	Distribution number	VVB samples
Ultra-Flo	3138	4
Ultra-Tab	6831	7

The verification team selected the random samples of CME's sampled records to check the acceptability (or otherwise) of the data for each such record with CME's sample records and determine if the CME's sample records meet the requirements. All the 11 main institutions (4 samples from Ultra Flo and 7 samples from Ultra Tab) sampled for the on-site audit survey were available at the time of on-site visit. During the on-site interviews with end-users, all the details and were found correct and no discrepancies were observed in the monitoring data.

VVB confirmed that the required confidence level has been met for the sampled data and that the samples were randomly selected and are representative of the entire population. Prior to the on-site visit, VVB applied randomizer in the monitoring data and generate the random numbers for the required 11 samples (4 of Ultra-Flo WPS unit type and 7 Ultra-tab WPS unit type). The samples were randomly picked-up to ensure that the selected samples were representative of the entire population. In addition, 4 extra samples were taken from the randomized dataset to propose backup samples.

D.5. Clarification requests (CLs), corrective action requests (CARs) and forward action requests (FARs) raised

Area of verification findings	No. of CL	No. of CAR	No. of FAR
General	-	-	-
Compliance of the monitoring report with the GS4GG monitoring report form	-	CAR#01	-
Remaining forward action requests from validation and/or previous verifications	-	-	FAR#01
VPAs considered for verification and covered under this report	-	-	-
Programme of activities	-	-	-
Compliance of the programme implementation with the registered PoA-DD	-	-	-
Implementation and operation of the management system	-		
VPA Implementation			
Compliance of the VPA implementation with the included VPA design document	-	-	-
Post-design certification changes	-	-	-
Compliance of the monitoring activities with the registered monitoring plan	-	-	-
Data and parameters fixed ex ante or at renewal of crediting period	-	-	-
Data and parameters monitored	-	CAR#02	-
Comparison of monitored parameters with last monitoring period	-	-	-
Implementation of the sampling plan	-	-	-
Assessment of data and calculations of net emission reductions or removals	-	-	-
Calculations of baseline value of each SDG Impact	-	-	-
Calculations of project value of each SDG Impact	-	-	-
Calculations of leakage GHG emissions	-	-	-
Calculations of net benefits for each SDG Impact	-	-	-
Comparison of actual GHG ER value achieved during this monitoring period with estimated value	-	-	-
Safeguarding principles	-	-	-
Stakeholder Inputs and Legal Disputes	-	-	-
Continuous input and grievance mechanism	-	-	-
Internal quality control	-	-	-
Verification opinion	-	-	-
Others	CL#01		
Total	01	02	01

SECTION E. Verification findings

E.1. General

E.1.1 Compliance of the monitoring report with the GS4GG monitoring report form

Means of verification	The monitoring report form used is GS4GG Monitoring report template version 1.1 /6/, which is a valid version available at the time of verification. All the sections of the aforesaid form were filled as per the Monitoring report template guide version 1.1 /7/ and all the relevant details were provided in the form.
Findings	CAR#01 was raised and resolved
Conclusion	The monitoring report version 2.1 /5/ has been found to be completed using the valid version of the monitoring report form. The information provided in the monitoring report has been assessed in accordance with the GS4GG principles & requirements version 1.2/1/ and monitoring report template guide /7/.

E.1.2 Remaining forward action requests from validation and/or previous verifications

There was one FAR raised from previous verification/33/, which was resolved during the current assessment period. For details, please refer Appendix 4 for this report.

E.1.3 VPAs considered for verification and covered under this report

Title and GS reference number of the VPA included in the PoA as of the end of this monitoring period	Is the VPA considered for this verification? (yes/no)	The date when the VPA was included	Version of the PoA-DD
GS11289: Improved Cookstove and Safe Water Programme – Kenya – VPA 31.	Yes	11/08/2022	6.0
GS11290: Improved Cookstove and Safe Water Programme – Kenya – VPA 32.	Yes	11/08/2022	6.0
GS11291: Improved Cookstove and Safe Water Programme – Kenya – VPA 33.	Yes	11/08/2022	6.0
GS11292: Improved Cookstove and Safe Water Programme – Kenya – VPA 34.	Yes	11/08/2022	6.0
GS11293: Improved Cookstove and Safe Water Programme – Kenya – VPA 35.	Yes	11/08/2022	6.0
GS11294: Improved Cookstove and Safe Water Programme – Kenya – VPA 36.	Yes	11/08/2022	6.0
GS11295: Improved Cookstove and Safe Water Programme – Kenya – VPA 37.	Yes	11/08/2022	6.0
GS11296: Improved Cookstove and Safe Water Programme – Kenya – VPA 38.	Yes	11/08/2022	6.0
GS11297: Improved Cookstove and Safe Water Programme – Kenya – VPA 39.	Yes	11/08/2022	6.0
GS11298: Improved Cookstove and Safe Water Programme –Kenya – VPA 40.	Yes	11/08/2022	6.0
GS11299: Improved Cookstove and Safe Water Programme – Kenya – VPA 41.	Yes	11/08/2022	6.0
GS11300: Improved Cookstove and Safe Water Programme – Kenya – VPA 42.	Yes	11/08/2022	6.0
GS11301: Improved Cookstove and Safe Water Programme – Kenya – VPA 43.	Yes	11/08/2022	6.0
GS11302: Improved Cookstove and Safe Water Programme – Kenya – VPA 44.	Yes	11/08/2022	6.0
GS11303: Improved Cookstove and Safe Water Programme – Kenya – VPA 45.	Yes	11/08/2022	6.0
GS11304: Improved Cookstove and Safe Water Programme – Kenya – VPA 46.	Yes	11/08/2022	6.0
GS11305: Improved Cookstove and Safe Water Programme – Kenya – VPA 47.	Yes	11/08/2022	6.0

E.2. Programme of activities

E.2.1 Compliance of the programme implementation with the registered PoA-DD

Means of verification	The purpose of the PoA "Improved Cookstove and Safe Water Programme" is to provide safe and clean drinking water through dissemination of low GHG water purification technologies (WPS) to schools in Kenya. The monitoring period covered under this verification is 01/01/2022– 30/06/2022 (Inclusive of both days). The implementation of the PoA has led to reduce the GHG emissions caused using non-renewable biomass/ fossil fuel for boiling water. It has also helped to reduce the incidence of waterborne/airborne illness and provided clean water to schools. The baseline study showed that the piped water can only be accessed by 36.8% of the total population of Kenya. /16/ Therefore, installation of WPS under the current PoA has provided access to safe water to larger population in schools of Kenya. All the VPAs selected under PoA are within the boundaries of PoA location i.e., Kenya. The VPAs covered by the PoA under this monitoring period are VPA 31 to VPA 47 corresponding to its GSID GS11289 to GS11305. The PoA meets the eligibility criteria of the Gold Standard and has applied

applicable methodology for quantification of GHG emission reductions. The latest and valid version of the methodology Emission reduction from Safe Drinking Water Supply, version 1.0 /8/. The CME for the PoA is Impact Carbon LLC, which distributed the WPS technologies by actively engaging with the local partners. The VPA Implementer is Impact Water LLC who is responsible for operating VPAs as per CME management system and conduct monitoring and verification.

The aforesaid VPAs involve dissemination of two types of water purification systems:

I. Chlorination (UltraFLO/UltraTab)

The technical specifications of the WPS distributed under the VPAs is provided in the table below:

Description	UltraFLO	UltraTab
Application	Piped water	Un-piped water
Flow rate	20L/min	1 tablet treats 100 L
Capacity/lifespan	340,000 L / 5-year expiry	Expiry: 5 years Capacity: Big pack: 48,000 ltrs Small pack: 10,000 ltrs
Fixed or Portable	Fixed	Portable
Removal of E. Coli	99 (2-log)	99 (2-log)

All the deployed systems meet the eligibility requirements of the PoA DD /9/. The details of the systems were verified from the manufacturer's specification /18/ provided by the CME.

During the on-site visit, the installation of WPS claimed by the CME were checked and found to be in-line with the technical description provided in the registered PoA-DD/9/ and monitoring report/5/.

The Verification team assessed the following information to verify the capacity and lifetime of systems under the VPAs:

1. Technical specification including capacity/ expiry of UltraFLO issued by Medentech (technology supplier)
2. Technical specification including capacity/ expiry of UltraTAB issued by Medentech (technology supplier)
3. The UltraTAB strip clearly mentions the treatment capacity of 1 tablet as 100ltrs and a Small Pack UltraTAB pack is standardized at 10 strips of 10 tablets each, rendering the capacity of Small Pack UltraTAB pack as 10,000 ltrs and Big pack: 48,000 ltrs as verified through on-site visit
4. UltraFLO cartridges are manufactured in a standardized size as per the dimensions specified in the VPA-DDs and MR (verified physically during on-site visit as well as UltraFLO dimension declaration by CME) and pertains to the specifications issued by Medentech.
5. The expiry of the UltraFlo/UltraTAB was also found mentioned on the UltraFLO cartridge / UltraTAB pack respectively as 5 years (verified during on-site visit).
6. The WPS installed by the CME were checked by the verification team during the on-site visit and found to be in-line with the technical description provided in the registered PoA-DD/9/ and Monitoring report/5/ and manufacturer's specifications /18/.

Also, the verification team checked the implementation status of the project activity through on-site interviews with the CME, the VPA implementer, monitoring personnel and WPS User as defined in the PoA DD/9/, and monitoring report /5/.

On-site Interview of the monitoring personnel involved in the QA/QC procedures revealed that the procedures mentioned in the PoA DD/9/ are being followed and

	the training records/20/ regarding the trained personnel were checked. The project location and coordinates were verified during on-site viist and using the "Google Map app"/27/ and found to be in-line with the registered PoA-DD/9/ and MR/5/. Further, based on the review of sales database (presented in ER sheet)/15/, on-site audit survey observations and interview conducted during the on-site, the verification team found that: • The VPA(s) were implemented within the boundary of the PoA as described in the revised accepted PoA-DD/9/. • The CME is same as that mentioned in the revised accepted PoA-DD/9/ • The implementation and operation of the project activity have been conducted in accordance with the description contained in the revised accepted PoA-DD/9/ and included VPA-DDs/10/. • All physical features of the VPA proposed in the included VPA-DDs/10/ were in place. • The project participants/VPA implementer has operated the VPAs as per the included VPA DDs/10/. A on-site audit survey was conducted by the verification team; 11 WPS were surveyed. The uniqueness of the system as identified from UID written on the units. The information of the installed WPS was also verified from the distribution database/28/ which was cross checked for 11 WPS samples with their corresponding purchase orders/29/. The emission reductions being claimed during this monitoring period are lesser than the estimated emission reductions in the revised or included VPA-DDs/10/, as given in the table under section E.8. for comparing ex-ante estimated ERs in the VPA DDs/10/ for the corresponding period with the actual ERs achieved. The VPAs are within the threshold limits of the applied methodology/8/. The monitoring report was compared and verified against the description provided in the revised accepted PoA-DD/9/ and found to be correct. The technical description of the project activity has been verified by assessing the description reported in the monitoring report against the applied methodology /8/ and cross-checked during on-site interviews. All the information was correctly mentioned in the monitoring report and its corresponding ER calculation sheet /5,15/. The summary of the implemented PoA and the technology involved are described in the PoA-DD /9/ with sufficient details and clarity. The accuracy of the PoA description was determined based on the on-site interviews with the CME representatives and project personnel as part of verification audit, review of supporting documents (as listed in Appendix 3), and interviews with the end-users. The specification of the installed technologies under each VPA is cross-checked from the manufacturer's specifications at the VPA level/18/. The assessment team has checked and reviewed the monitoring report with supportive evidence and found the details to be correct. The crediting period is 01/01/2021 to 31/12/2025 which is of total 5 years. The monitoring period for this verification is 01/01/2022 to 30/06/2022 (inclusive of both days). Achieved emission reductions are 379,129 tCO2e for the current MP 01/01/2022–30/06/2022 (inclusive of both days). The emission reduction calculation sheet was reviewed/15/. CME has applied correct formulae and calculated emission reductions in accordance with the applied methodology/8/.

	VVB has also checked the project details such as title of the project, project location, technology applied, and VPAs in project portals of carbon standard CDM, VCS, GCC, GS and through random google search. The PoA was previously registered as PoA 9948 with a different PoA title under CDM which has been transparently transitioned to GS 11189 through GS approval process. The same information is reported by CME in MR.
Findings	None
Conclusion	Based on the review of the monitoring report, PoA-DD, VPA-DD, installation database and on-site visit interviews conducted with the CME represntatives, VPA Implementer and end-users, the verification team found that: a) The VPAs are implemented within the boundaries of the PoA i.e., Kenya as described in the PoA-DD b) CME for the PoA is Impact Carbon and VPA Implementer is Impact Water c) The distribution and operation of the PoA has been done in accordance with the description reported in the PoA-DD and included VPA-DDs. d) The monitoring and implementation process is in line to the VPA-DDs, which is further explained under section E.4 of this verification report. e) The crediting period of the PoA is of 5 years starting form 01/01/2021 to 31/12/2025. The monitoring period covered under this verification assessment is 01/01/2022 to 30/06/2022 (inclusive of both days). f) Achieved ERs are lower than the estimated ERs for all the VPAs

E.2.1. Implementation and operation of the management system

Means of verification	The monitoring plan, as explained in section C of the monitoring report, has been found in compliance with the requirements of the applied methodology /8/. The roles & responsibility of both CME & VPA implementers are well defined. CME's role is primarily with the documentation at both PoA & VPA level, training of the Implementers confirmed during the physical interviews with the CME's team. The documentation and record maintenance for each VPA under the PoA is performed by Program Manager. CME is responsible for outreaching, training, and ensuring proper addressal of concerns or grievances made by the end-users related to WPS technology being installed at their institutions. Each VPA implementer collected and reported the required data as much as possible to effectively monitor the emission reductions of each VPA in accordance with the monitoring plan in the VPA-DDs. Training records is being maintained by the Program Manager and is also responsible for managing electronic database containing list of units installed/ distributed along with the required end user/ baseline information complied by customer engagement staff. The database of total sales records for each of the distributed WPS (UltraFlo/ UltraTab) is maintained electronically along with the paper records and/or SMS tracking records. The total sales record consists of following information a. Type of system (UltraFLO / UltraTAB) b. Unique serial number of the units installed / distributed c. Date of installation / distribution d. Address and details of school and contact detail (if available) of representative e. Type of School (Boarding / Non-boarding) f. Number of project technology installed/distributed in an institution g. School population count (number of students / staff in boarding / non-boarding category) The verification team confirmed that the distributed WPS units have Unique product ID as confirmed during the on-site surveys. This was found consistent with the information given in the installation database /15/ and it was ensured that double counting is avoided. The management system maintained by the CME is in place

	with the PoA DD /9/.
Findings	No findings were raised.
Conclusion	The verification team assessed the management systems in place to implement the monitoring of the PoA. This included the roles and responsibilities, data collection, transfer and aggregation procedures, data storage and archiving for the monitoring system, training records /19,20/ as reported in the monitoring report. The verification team confirms that the monitoring management system of the PoA is in place with the responsibilities properly identified and established.

E.3. VPA Implementation

E.3.1. Compliance of the VPA implementation with the included VPA design document

Means of verification

The registered PoA aims to provide safe drinking water to the institutions in Kenya. The PoA is primarily designed to replace the existing fossil fuel / non-renewable woody biomass-based means of purifying water by installing low emission / emission free Water purification systems to provide safe drinking water. Impact Water is the implementer of the VPAs and has fully implemented the VPAs with the help of Sales and Distribution Partners (SDP). The same has been verified from the agreement between the CME and VPA Implementer /35/. This monitoring report includes the implementation and monitoring of 17 VPAs- VPA GS 11289-GS 11305 in Kenya.

The type of systems installed under the VPA are as follows:

Type of installed technology (Service level)	**Technology / operating concept**	**Technology**	**Implementation level (Cumulative Number of units installed)**	**MoV**
Institution/School Institution/School	Chlorination: This uses activated chlorine to kill pathogens in water	UltraFlo	2022- 3,138	The total number of UltraFlo distributed by the end of the monitoring period is 3,138 which is verified from the installation database provided in the ER sheet /15/.
		UltraTab	2022- 6,831	The total number of UltraTab distributed by the end of the monitoring period is 6,831 which is verified from the installation database provided in the ER sheet /15/.

The specification of water purification technology:

WPS Models	**Lifetime**	**Fixed or Portable**	**Removal of E. coli**	**Minimum Watt / Voltage**	**MoV**
UltraFLO	Expiry: 5 years Capacity: 340,000 ltrs	Fixed	99 (2-log)	Not applicable	Technical specifications of the UltraFlo system were verified through the details provided in the manufacturer's specifications /18/ and were found to be consistent with the information given in monitoring report /5/.
UltraTAB	Expiry: 5 years Capacity:	Portable	99 (2-log)	Not applicable	Technical specifications of the UltraFlo system were verified through the details

	Big pack: 48,000 ltrs Small pack: 10,000 ltrs				provided in the manufacturer's specifications /18/ and were found to be consistent with the information given in monitoring report /5/.

The table below provides details on VPA and technology specific figures for this monitoring period:

VPA no.	First WPS Installation date	Crediting period	No. of units (installed)		Estimated ERs	ERs achieved
			FLO	TAB		
GS11289	14/03/2018	01/01/2021 - 31/12/2025	397	251	27,561	22,526
GS11290	28/01/2019	01/01/2021 - 31/12/2025	179	468	27,561	23,143
GS11291	10/04/2019	01/01/2021 - 31/12/2025	174	470	27,561	23,586
GS11292	17/05/2019	01/01/2021 - 31/12/2025	168	478	27,561	23,751
GS11293	19/06/2019	01/01/2021 - 31/12/2025	151	483	27,561	25,250
GS11294	06/07/2019	01/01/2021 - 31/12/2025	183	425	27,561	25,834
GS11295	09/08/2019	01/01/2021 - 31/12/2025	102	537	27,561	24,459
GS11296	11/09/2019	01/01/2021 - 31/12/2025	118	523	27,561	23,690
GS11297	02/10/2019	01/01/2021 - 31/12/2025	89	517	27,561	24,245
GS11298	23/10/2019	01/01/2021 - 31/12/2025	112	490	27,561	23,127
GS11299	28/10/2019	01/01/2021 - 31/12/2025	18	508	27,561	24,697
GS11300	06/01/2020	01/01/2021 - 31/12/2025	226	411	27,561	26,002
GS11301	21/01/2020	01/01/2021 - 31/12/2025	443	201	27,561	23,020
GS11302	31/01/2020	01/01/2021 - 31/12/2025	347	294	27,561	24,093
GS11303	12/02/2020	01/01/2021 - 31/12/2025	261	377	27,561	24,396

GS11304	07/11/2019	01/01/2021 - 31/12/2025	130	231	27,561	9,965
GS11205	28/04/2018	01/01/2021 - 31/12/2025	34	167	27,561	7,345
Total			3138	6831	**468,537**	**379,129**
	As checked from the delivery notes/31/	Checked from the GS website	Check-ed from sales data base/28/	Check-ed from sales data base/28/	Checked from the ER sheet/15/	Checked from the ER sheet/15/

The start date of crediting period, inclusion dates of the VPAs were checked from the GS VPA DDs /10/. The First WPS Installation dates were checked from the salesforce residual capacity calculator /30/.

The implementation of the VPA as mentioned above is within the geographical boundary of PoA-DD /9/, which has been verified through review of lat-long data /27/, discussed already in Section E.2.1 above. Impact Carbon is the CME of the VPA, and Impact Water is the VPA Implementer /5/.

In case of UltraFLO, it shall be noted that water is transported from primary water sources such as wells, surface water and boreholes through pipes to drinking water storage tanks in project schools. The Ultra-FLO systems are installed on these pipes which was found to be in-line to requirement set in the VPA-DDs/10/.

In the absence of a pipeline connection to the drinking water storage tanks, UltraTABs are provided to the schools, which are designed for non-piped applications. An UltraTAB pack consists of 10 strips of 10 tablets each (or 48 tablets in each trip for big pack), wherein the tablets can be directly put in drinking water storage tank (@one tablet per 100L of water), thus, is feasible for un-piped applications.

During the on- site audit survey conducted for the current issuance request, it was clearly noted by the verification team that UltraFLO systems have only been installed on pipeline connections, even when the primary water source is different from City Council / Government / Municipal water connection. Similarly, UltraTABs are administered only in un-piped applications even when the schools may have a piped connection (not connected to drinking water storage tank).

Thus, all the systems have been implemented in line with the VPA DDs/10/.

The implementation of the VPAs, as defined in the monitoring report, were assessed through document reviews and on-site survey. The VPAs covered in this PoA is within the geographical boundary of the PoA, which constitutes physical boundary as well. The water purification system (WPS) deployed under PoA is verified as follows.

The verification team during the current verification has carried out on-site visit and physical interviews with the CME/ VPA Implementers to understand and verify the VPA implementation and deviations in the monitoring, if any. It was observed that each has school has unique Institution Salesforce ID, each WPS unit distributed was assigned a unique product ID, which ensured that there is no double counting for the technologies distributed in the VPA. The unique product ID on each unit, personal information of unit owners and installation date and supply dates of unit was cross checked with the installation database and monitoring samples data provided in ER calculation sheet /15/ and audit sample data. The operation of the technology was confirmed through physical interviews of the sampled institutions' representatives during the on-site audit.

Findings	None
Conclusion	a) The verification team is of the opinion that physical features of the VPA have been implemented in accordance with the VPA-DDs /10/. b) No specific monitoring equipment had to be installed according to the monitoring plan. c) It is also confirmed, through the on-site audit survey and review of the supporting documentation that physical features of the component VPA have been implemented in accordance with the VPA-DDs /10/. d) The VPA was also found to be completely operational in line with the VPA-DDs /10/. However, CME has sought a temporary deviation during the current MP for the systems that were fully consumed/ discontinued prior to the start of the current monitoring period. e) The information provided in the relevant sections of the monitoring report appropriately describes the implementation and operational status of the PoA.

E.4. Post-design certification changes

E.4.1. Temporary deviations from the approved Monitoring & Reporting Plan, methodology or standardized baseline

PD has sought deviation for the monitoring methodology (Dev 184) dated 07/12/2021. This has been included in B.2.1 section in the MR. The proposed deviation was related to conduct the project surveys for WPS stratifying each technology irrespective of their age, and by grouping more than 10 small scale VPAs together. As per the justification, the VPAs included in this PoA in each country are identical and as follow same management plan, operational plan and technologies. This deviation was approved by GS, for the first crediting period of the VPAs GS11259 to GS11305, however put forward following two conditions:

1. The stratified random sampling approach applied for sample size calculation for the monitoring survey must meet all the requirements under Appendix 3 of Guideline: Sampling and surveys for CDM project activities and programmes of activities.

2. Continuity in the project's monitoring activities is maintained, and PD can justify that no monitoring gaps exist (especially for SDG parameters) within the Monitoring Period(s). However, if gap(s) exist, the project shall justify that conservative approach(es) have been applied in line with section 3 of the Deviation Approval Requirements and Procedures (version 1.1) and overarching GS principles (as applicable).

E.4.2. Corrections

Not Applicable

E.4.3. Changes to start date of crediting period

Not Applicable

E.4.4. Permanent changes from the Design Certified monitoring plan, applied methodology or applied standardized baseline

Not Applicable

E.4.5. Changes to project design of approved project

Not Applicable

E.5. Compliance of the monitoring activities with the registered monitoring plan

Means of verification	The monitoring plan as contained in monitoring report /5/ were reviewed against the monitoring requirements of the applied methodology /8/ as well as PoA-DD and VPA-DDs /9,10/ with reference to the technology involved. Based on this review, it was found that the monitoring plan includes all the required parameters to be monitored in the context of the VPA design and description and allows proper determination of emission reductions in accordance with PoA-DD /9/ and applied methodology Emission reductions from Safe Drinking Water Supply, version 1.0/8/.
Findings	No findings were raised
Conclusion	The monitoring plan is in line with the approved methodology Emission reductions

	from Safe Drinking Water Supply, version 1.0/8/, that is included in the PoA-DD and VPA-DDs /9,10/.

E.5.1. Data and parameters fixed ex ante or at renewal of crediting period

$ABS_{Baseline}$ Access to Basic Services (number of premises with at least one WPS distributed / installed under the baseline)

SDG Indicator	1
Means of verification	The parameter represents number of premises with at least one WPS distributed / installed under the baseline. VPAs aim at distributing WPS to the institutions of Kenya thereby replacing the baseline method of boiling of water for consumption. Thus, CME assumes the parameter value to be zero as none of the institutes were having WPS in the baseline scenario. The value of the parameter is sourced from the VPA DDs/10/. Moreover, none of the end users replied to be using an improved technology before the receiving the project water purification system.
Findings	No findings were raised.
Conclusion	The value in the monitoring report /5/ and ER calculation sheet /15/ are consistent with the PoA-DD /9/ and VPA-DDs /10/. The value applied is correct and justified.

$IH_{Baseline}$ Good Health and Well Being

SDG Indicator	3
Means of verification	The parameter referred to % Of users reporting reduction in incidence of diarrhoea and water borne diseases etc. in baseline (improved health). CME assumes the parameter value to be zero as none of the institutes were having WPS in the baseline scenario. The value of the parameter is sourced from the VPA DDs/10/. Moreover, none of the end users replied to be using an improved technology before the receiving the project water purification system.
Findings	No findings were raised.
Conclusion	The value in the monitoring report /5/ and ER calculation sheet /15/ are consistent with the PoA-DD /9/. The value applied is correct and justified.

$SWQ_{Baseline}$ Clean Water and sanitation

SDG Indicator	6
Means of verification	The PoA distributed WPS to the institutions of Kenya thereby replacing the baseline method of boiling of water for consumptions. The parameter refers to % Users reporting safe water quality in baseline. Thus, CME assumes the parameter value to be zero as none of the institutes were having WPS in the baseline scenario. The value of the parameter is sourced from the VPA DDs/10/. Moreover, none of the end users replied to be using an improved technology before the receiving the project water purification system.
Findings	No findings were raised.
Conclusion	The value in the monitoring report /5/ and ER calculation sheet /15/ are consistent with the PoA-DD /9/. The value applied is correct and justified.

$AAC_{Baseline}$ Affordable and Clean Energy

SDG Indicator	7
Means of verification	The PoA distributed WPS to the institutions of Kenya thereby replacing the baseline method of boiling of water for consumptions. The parameter refers to access to affordable and clean energy % of operating WPS units under baseline. Thus, CME assumes the parameter value to be zero as none of the institutes were having WPS in the baseline scenario. The value of the parameter is sourced from the VPA DDs/10/. Moreover, none of the end users replied to be using an improved technology before the receiving the project water purification system.
Findings	No findings were raised.
Conclusion	The value in the monitoring report /5/ and ER calculation sheet /15/ are consistent with the PoA-DD /9/. The value applied is correct and justified.

QE $IG_{Baseline}$ Decent Work and Economic Growth

SDG Indicator	8
Means of verification	The PoA distributed WPS to the institutions of Kenya thereby replacing the baseline

	method of boiling of water for consumptions. The parameter refers to Quantitative Employment and income generation (Number of person (male and female) hired under Baseline). Thus, CME assumes the parameter value to be zero as none of the institutes were having WPS in the baseline scenario. The value of the parameter is sourced from the VPA DDs/10/. Moreover, none of the end users replied to be using an improved technology before the receiving the project water purification system.
Findings	No findings were raised.
Conclusion	The value in the monitoring report /5/ and ER calculation sheet /15/ are consistent with the PoA-DD /9/. The value applied is correct and justified.

Project technological description, the detailed description of the planned project technology

SDG Indicator	13
Means of verification	The value for this parameter has been verified from the Manufacturer's specifications /18/. Description: UltraFLO / Ultra TAB Manufacturer: Medentech / Medentech Product Name: UltraFLO / Big Pack, Small Pack Technology type: Chlorination / Chlorination Performance classification: Complies with National standard / Complies with National standard The evidence /18/ shared by the CME has been reviewed and it was found that project technological description is correctly reported in monitoring report /5/.
Findings	No findings were raised.
Conclusion	The value in the monitoring report /5/ and ER calculation sheet /15/ are consistent with the PoA-DD /9/. The value applied is correct and justified.

Regulatory framework for safe water supply, National, sub-national and local regulations or guidance for safe drinking water supply, operation and maintenance, including any tariff requirements in host country Kenya

SDG Indicator	13
Means of verification	The project does not undermine or conflict with any national, sub-national and local regulations or guidance for safe drinking water supply, operation and maintenance, including any tariff requirements. Further, the national standards and local regulations for safe drinking water supply do not impose any cap on parameters used by the methodology and therefore have no implications on emission reduction calculations. The VPAs are in line with all the local and national Safe Water guidelines.
Findings	No findings were raised.
Conclusion	The value in the monitoring report /5/ and ER calculation sheet /15/ are consistent with the PoA-DD /9/. The value applied is correct and justified.

Water resources in the project activity, Improved and Unimproved drinking water sources in Kenya

SDG Indicator	13

Means of verification

Baseline survey of Schools

S.No	Drinking water source	School/ Institutions (%)
1.	Government/ Private piped connection	22.78
2.	Surface water	10.56
3.	Well, /Borehole	42.22
4.	Rainwater	20.00
5.	Trucked Water	3.33
6.	Others	1.11

The value for this parameter is different for improved and unimproved drinking water sources in Kenya. The value is sourced form baseline survey sheet /23/.

PD has taken following values for other water sources as per annex 2 of the applied methodology.

S.No	Source of drinking water	% Premises
1.	Improved sources	88.33
2.	Unimproved Sources	11.67

Findings

No findings were raised.

Conclusion

The value in the monitoring report /5/ and ER calculation sheet /15/ are consistent with the VPA-DD /10/. The value applied is correct and justified.

Stove technologies used in the project boundary; The proportion of different stove types used in premises in the geographical area of the project. If the project covers different types of end-users premises (e.g. households, institutions), then the stoves technologies should be determined for each premises type.

SDG Indicator

13

Means of verification

Baseline survey of Schools

S.no	Stove Technology	School/Institutions (%)
1	Traditional / 3 Stone Fire	98.84
2	Traditional Charcoal Pot	1.16

Stove technologies used in the project boundary was found to be traditional 3 stone stoves or charcoal pots. The values are used to calculate baseline emission. The value is sourced from baseline survey sheet /23/.

Findings

No findings were raised.

Conclusion

The value in the monitoring report /5/ and ER calculation sheet /15/ are consistent with the VPA-DD /10/. The value applied is correct and justified.

Expected technical life of project technology, The expected technical life of an individual project technology shall be defined in the PDD. The details include both technology/device life and filter life, if a filter is used and it is replaceable.

SDG Indicator

13

Means of verification

The expected technical life of the project technology is in accordance with the manufacturer's specifications /18/ and has been correctly reported in monitoring report /5/.

Description	UltraFLO	UltraTAB
Treatment Volume (Ltrs)	340,000	Big Pack: 48,000 Small Pack: 10,000
Life Span / Expiry-filter	5 years	5 years
Life Span / Expiry - system	20 years	20 years

Findings

No findings were raised.

Conclusion

The value in the monitoring report /5/ and ER calculation sheet /15/ are consistent with the VPA-DD /10/. The value applied is correct and justified.

X_f, The proportion of each different cooking fuel f used in the project boundary by end-users:

SDG Indicator	13
Means of verification	The fuel used in the project location are woodfuel, charcoal and kerosene. The values are used to calculate baseline emission. The value is sourced from baseline survey sheet /23/. S.no | Baseline Fuel Usage | School/Institutions (%) 1. | Woodfuel | 98.84 2. | Charcoal | 1.16
Findings	No findings were raised.
Conclusion	The value in the monitoring report /5/ and ER calculation sheet /15/ are consistent with the VPA-DD /10/. The value applied is correct and justified.

$EF_{b, f, CO2,}$ CO2 emission factor from use of fuels

SDG Indicator	13
Means of verification	Following are the values applied under this parameter Wood = 112 tCO2/TJ Charcoal = 165.22 tCO2/TJ (includes charcoal production emissions) The value for this parameter is sourced from IPCC default value for wood and charcoal: IPCC 2006 Guidelines for National Greenhouse gas inventories /24/.
Findings	No findings were raised.
Conclusion	The value in the monitoring report /5/ and ER calculation sheet /15/ are consistent with the VPA-DD /10/. The value applied is correct and justified.

$EF_{b, f, nonCO2}$,Non-CO_2 emission factor from use of fuels, in case the baseline fuel is biomass or charcoal

SDG Indicator	13
Means of verification	Following are the values applied under this parameter AR5 GWP - Wood: 9.46 tCO2e/TJ - Charcoal: 44.83 tCO2e/TJ (includes production emissions of CH4 and N2O) The value for this parameter is sourced from IPCC default value for wood and charcoal: IPCC 2006 Guidelines for National Greenhouse gas inventories /24/.
Findings	No findings were raised.
Conclusion	The value in the monitoring report /5/ and ER calculation sheet /15/ are consistent with the PoA-DD /9/. The value applied is correct and justified.

η_{wb} ,Weighted average efficiency of the baseline water boiling devices.

SDG Indicator	13
Means of verification	The parameter calculates the weighted average of the baseline water boiling devices. Stove technology usage S.no | Stove Technology | School/Institutions (%) 1 | Traditional / 3 Stone Fire | 98.84 2 | Traditional Charcoal Pot | 1.16 Stove efficiency S.no | Stove Technology | % Efficiency 1 | Traditional / 3 Stone Fire | 10 2 | Traditional Charcoal Pot | 20 The value 10.12% used for calculation has been sourced from baseline survey data /23/.
Findings	No findings were raised.
Conclusion	The value in the monitoring report /5/ and ER calculation sheet /15/ are consistent

	with the VPA-DD /10/. The value applied is correct and justified.

C_b , Proportion of project end-users who in the baseline were already using safe water, either from an improved water source, or from a water treatment method other than boiling.

SDG Indicator	13
Means of verification	The value 4.44% applied in this parameter is the proportion of project end-users who in the baseline were already using safe water, either from an improved water source, or from a water treatment method other than boiling. The value has been sourced form baseline survey data /23/.
Findings	None
Conclusion	The value in the monitoring report /5/ and ER calculation sheet /15/ are consistent with the VPA-DD /10/. The value applied is correct and justified.

***q_i*, Capacity of the household or institutional water treatment technology**

SDG Indicator	13
Means of verification	This parameter is referred to capacity of the household or institutional water treatment technology. Description: UltraFLO / UltraTAB Dosage rate (Treatment Capacity (Ltrs)): 340,000L/ Cartridge / Big Pack: 48,000 L/Tab Pack; Small Pack: 10,000 L/ Tab Pack The value has been sourced from technological specifications data provided by CME /18/.
Findings	No findings were raised.
Conclusion	The value in the monitoring report /5/ and ER calculation sheet /15/ are consistent with the VPA-DD /10/. The value applied is correct and justified.

$f_{nrb,f,y}$, Fractional non-renewability status of woody biomass fuel during year *y*, in case the baseline fuel is biomass or charcoal

SDG Indicator	13
Means of verification	This parameter is referred to fractional non-renewability status of woody biomass fuel during year y in case the baseline fuel is biomass or charcoal. The value applied is 93.51% which is confirmed from the UN Data and FRA 2015 C4 EcoSolutions report shared by CME /25/.
Findings	No findings were raised.
Conclusion	The value in the monitoring report /5/ and ER calculation sheet /15/ are consistent with the VPA-DD /10/. The value applied is correct and justified.

QPW_p , Volume of drinking water per person per day for premises type p

SDG Indicator	13
Means of verification	The value of this parameter has been applied as per the applied methodology /8/. Type of Premises / Default value / Applicability Full-day premises / 4 L /person / day / Premises like households etc. Boarding school / 4 L /person / day / - Half time premises / 3 L /person / day / Premises like day schools, offices etc.
Findings	No findings were raised.
Conclusion	The value in the monitoring report /5/ and ER calculation sheet /15/ are consistent with the VPA-DD /10/. The value applied is correct and justified.

E.5.2. Data and parameters monitored

$ABS_{Project}$ Access to Basic Services (number of premises with at least one WPS distributed / installed under the project)

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	1
	Measuring /Reading /Recording frequency	Continuous
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	9,969 The verification team confirmed the value from installation database provide in Installation database of ER sheet and found it correct /15/. The institutions selected during through acceptance sampling were also checked for the details mentioned for these schools in the database. The information was found to be consistent between the database and the VVB survey.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	NA
	In case project participants have deviation from gold standard?	Yes, please see section E.7.
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the monitoring plan /9/ and applied methodology /8/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/9/.	

$IH_{Project}$ % of users reporting reduce in incidence of diarrhoea and water borne diseases etc. (improved health) in project

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	3
	Measuring /Reading /Recording frequency	Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes.
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	94.39% This parameter accounts for % of users reporting reduction in incidence of diarrhoea and water borne diseases etc. in project (improved health). The parameter is determined through surveys and the frequency of monitoring is annual or biennial. Surveys forms/21/ were checked and found to be consistent with the ER sheet (worksheet : monitored samples)/15/. VVB has conducted acceptance sampling to

		verify the CME survey results. The institution heads interviewed during on-site survey (11 samples) confirmed that none of school staff or students reported cases of diarrhoea and water borne diseases and provided their positive feedback to the WPS technology installed at the school. The information was found to be consistent between the CME survey and the VVB field survey.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The CME staff conducting the surveys are trained as confirmed from the training records/20/.
	In case project participants have deviation from gold standard?	Yes, please see section E.7.
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the monitoring plan /9/ and applied methodology /8/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/9/.	

$SWQ_{Project}$ % WPS distributed / installed providing safe drinking water to beneficiaries in project

Means of verification	**Criteria/Requirements**	**Assessment/Observations**
	SDG Indicator	6
	Measuring /Reading /Recording frequency	Annual/ Biennial
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	94.39 % The frequency of monitoring is annual or biennial. The value obtained from water quality test is correctly calculated and reported in sample size calculation worksheet of ER sheet /15/. The tests were conducted by the trained staff of CME and results were evaluated in the central office. Test reports for 11 samples were checked /34/ and found to be consistent with the survey results were presented in ER sheet (monitoring survey)/15/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, CME has employed 13 personnel that has been trained to conduct monitoring surveys and water quality test. Training records and HR records were reviewed.
	In case project participants have deviation from gold standard?	Yes, please see section E.7.
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan /9/ and applied methodology /8/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/9/.	

$AAC_{Project}$ Access to affordable and clean energy (% of operating WPS units under Project)

Means of verification	**Criteria/Requirements**	**Assessment/Observations**

	SDG Indicator	7
	Measuring /Reading /Recording frequency	Annual/ Biennial
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	93.17% The value is correctly calculated and reported in sample size calculation worksheet of ER sheet /15/. The parameter is determined through annual surveys. Surveys forms/21/ were checked and found to be consistent with the ER sheet (worksheet : monitored samples)/15/. VVB has conducted acceptance sampling to verify the CME survey results. 11 samples were checked and found to be consistent with the survey results were presented in ER sheet (monitoring survey)/15/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The staff conducting the surveys are trained as confirmed from the training records/20/.
	In case project participants have deviation from gold standard?	Yes, please see section E.7.
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan /9/ and applied methodology /8/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/9/.	

QE $IG_{project}$ Quantitative Employment and income generation (Number of person (male and female) hired under project)

Means of verification	**Criteria/Requirements**	**Assessment/Observations**
	SDG Indicator	8
	Measuring /Reading /Recording frequency	Annual/ Biennial
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	Total number of employees hired during this monitoring period is 17. This parameter represents quantitative Employment and income generation (Number of person (male and female) hired under project). The value has been confirmed from statement of employees at impact Water document /36/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	NA
	In case project participants have deviation from gold standard?	NA

Findings	No findings were raised.
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan /9/ and applied methodology /8/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/9/.

$M_{q,y}$ Ongoing water quality indicated as the fraction of the samples that pass microbial quality standard

Means of verification	**Criteria/Requirements**	**Assessment/Observations**
	SDG Indicator	13
	Measuring /Reading /Recording frequency	Annually or more frequently
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	The value (0.9439) of this parameter is obtained from water quality test. Water quality testing of the project devices was conducted on sampling basis. The samples of treated water collected from project devices and tested using field testing kits. Institution heads interviewed during on-site audit confirmed that representative from VPA Implementers had visited recently to collect water sample.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The staff conducting the test are trained as confirmed from the training records/20/.
	In case project participants have deviation from gold standard?	Yes, please see section E.7.
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan /9/ and applied methodology /8/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/9/.	

Water hygiene education campaigns - Hygiene campaigns carried out among project safe water end users

Means of verification	**Criteria/Requirements**	**Assessment/Observations**
	SDG Indicator	13
	Measuring /Reading /Recording frequency	Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	115 samples monitored Water hygiene education campaigns is conducted annually. The verification team reviewed Hygiene Awareness Campaign Report /22/ and the questionnaire used for project monitoring that consists of questions related to hygiene. Surveys forms/21/ were checked and found to be consistent with the ER sheet) worksheet: monitored samples)/15/. VVB has conducted acceptance sampling to verify the CME survey results.

		The institution heads interviewed during on-site survey(11 samples) confirmed hygiene campaigns were conducted at the school. The information was found to be consistent between the CME survey and the VVB survey.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The staff conducting the surveys are trained as confirmed from the training records/20/.
	In case project participants have deviation from gold standard?	Yes, please see section E.7.
Findings	CAR#02 was raised and successfully closed.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan /9/ and applied methodology /8/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/9/.	

$X_{cleanboil,y}$ Proportion of project end-users that boil safe (treated, or from safe supply) water after installation of project technology

Means of verification	**Criteria/Requirements**	**Assessment/Observations**
	SDG Indicator	13
	Measuring /Reading /Recording frequency	Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	The parameter accounts for Proportion of project end-users that boil safe (treated, or from safe supply) water after installation of project technology. Surveys forms/21/ were checked and found to be consistent with the ER sheet (worksheet : monitored samples)/15/. VVB has conducted acceptance sampling to verify the CME survey results. The institution heads interviewed during on-site audit (11 samples) confirmed that none of the school boil water for drinking purpose and they only consume water purified from installed WPS unit in the school. The information was found to be consistent between the CME survey and the VVB survey.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The staff conducting the surveys are trained as confirmed from the training records/20/.
	In case project participants have deviation from gold standard?	Yes, please see section E.7.
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan /9/ and applied methodology /8/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/9/.	

$HN_{p,y}$ Number of individuals per premises type p in the project boundary in year y

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	13
	Measuring /Reading /Recording frequency	Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	460 The parameter represents the number of individuals per premises in the project boundary. The value reported is the average value across all the VPAs covered in the monitoring period. The number of individuals in each of the schools covered under the sampled data (acceptance sampling) was cross-checked during on-site survey and found correct. The verification team confirms that value reported in the ER sheet is correct.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The staff conducting the surveys are trained as confirmed from the training records/20/. In addition, PD will cross-check the value of the parameter with at least once other sources as mentioned in the MR (Project survey, Official government publications or statistics, Credible published literature for project region, or Studies by academia, NGOs or multilateral institutions).
	In case project participants have deviation from gold standard?	Yes, please see section E.7.
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan /9/ and applied methodology /8/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/9/.	

***$N_{p,y}$* Accumulated number of premises type p with at least one individual project technology in year y**

Means of verification	Criteria/Requirements	Assessment/Observations
	SDG Indicator	13
	Measuring /Reading /Recording frequency	Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	9,969 The parameter calculates the total number of premises with at least one individual technology type. The verification team confirms that each WPS unit distributed in schools were given unique product ID and it was ensured that there is no double counting.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary	Yes, CME has employed 13 personnel that has been trained to conduct monitoring surveys and water quality test. Training records and HR

	QA/QC processes in place?	records were reviewed.
	In case project participants have deviation from gold standard?	NA
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan /9/ and applied methodology /8/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/9/.	

$U_{p,y}$ Usage rate of the project technology by premises type p during year y

Means of verification	**Criteria/Requirements**	**Assessment/Observations**
	SDG Indicator	13
	Measuring /Reading /Recording frequency	Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	93.17% The value is correctly calculated and reported in monitoring report and ER calculation sheet. /5,15/ The CME has determined the value of the parameter through usage surveys. Surveys forms/21/ were checked and found to be consistent with the ER sheet (worksheet: monitored samples)/15/. VVB has conducted acceptance sampling to verify the CME survey results. The institution heads interviewed during on-site audit (11 samples) confirmed that the device installed in their school is active. The information was found to be consistent between the CME survey and the VVB survey.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Surveys have been conducted by trained staff/20/.
	In case project participants have deviation from gold standard?	Yes, please see section E.7.
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan /9/ and applied methodology /8/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/9/.	

$DP_{p,y}$ Average days the project technology is present for end-users in the premises p in year y

Means of verification	**Criteria/Requirements**	**Assessment/Observations**
	SDG Indicator	13
	Measuring /Reading /Recording frequency	Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA

	How were the values in the monitoring report verified?	The number of operational school days in the monitoring period is 92, excluding weekends, holidays and term-breaks, as applicable for boarding and non-boarding premises. The school academic calendar/32/ for Kenya was checked to confirm that the number of days has been calculated correctly removing the holidays.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	NA
	In case project participants have deviation from gold standard?	Yes, please see section E.7.
Findings	No findings were raised.	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan /9/ and applied methodology /8/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan/9/.	

$DN_{p,y}$ Average number of individual project technologies in each project premises type p in year y

Means of verification	**Criteria/Requirements**	**Assessment/Observations**
	SDG Indicator	13
	Measuring /Reading /Recording frequency	Annually
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
	Monitoring equipment	NA
	How were the values in the monitoring report verified?	The total number of individual project units by each project premise type in each specific VPA is recorded in the database and monitored annually through surveys. The number of units were checked during the VVB sampling and institution heads were asked during on-site audit about the total number of units installed in each school and cross-checked from the installation database provided in ER calculation sheet /15/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	NA
	In case project participants have deviation from gold standard?	Yes, please see section E.7.
Findings	CAR#02 was raised and resolved	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan /9/ and applied methodology /8/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan /9,10/.	

E.5.3. Comparison of monitored parameters with last monitoring period

Means of verification	**Data/Parameter**	**Value obtained in this monitoring period**	**Value obtained last monitoring period**
	$ABS_{Project}$	9,969	9,963
	$IH_{Project}$	94.39	96.08
	$SWQ_{Project}$	94.39	96.08
	$AAC_{Project}$	93.17	94.49

	QE $IG_{Project}$	17	13
	$M_{q,y}$	0.9439	0.9608
	Water hygiene education campaigns	115 samples monitored	108 samples monitored
	$X_{cleanboil,y}$	0%	0%
	$HN_{p,y}$	460	452
	$N_{p,y}$	9,969	9,963
	$U_{p,y}$	93.17	94.49
	$DP_{p,y}$	92	209
	$DN_{p,y}$	1.0	1.0
Findings	No findings were raised.		
Conclusion	This is second monitoring period of verification of PoA. The verification team confirms that all the values of monitoring parameters obtained in this monitoring period is accurately calculated and reported in monitoring report and ER sheet /5,15/.		

E.6. Implementation of sampling plan

Means of verification

The CME as per the monitoring plan has followed CDM Guidelines for sampling and surveys for CDM project activities and programmes of activities /14/ to design the sampling plan for the VPAs in line with the applied methodology are Emissions reduction from Safe Drinking Water Supply, Version 1.0/8/. The CME has applied across VPA sampling for all the 17 VPAs covered under this PoA. PD has provided random number generator screenshots /37/ to substantiate the process of sampling process. VVB has checked the shared evidence and confirmed that the PD has done random sampling and the samples were chosen randomly for monitoring. As per the sampling plan stated in the monitoring report /5/, a minimum 95% confidence interval and a 10% margin of error requirement is achieved for the sampled parameters.

Parameters determined through sampling

Data/ Parameter	Description of parameter
$M_{q,y}$	Ongoing water quality indicated as the fraction of the samples that pass microbial quality standard
$U_{p,y}$	Usage rate of the project technology by premises type p during year y

Other parameters:

Data/Parameter	Description
$ABS_{Project}$	Access to Basic Services (number of premises with at least one WPS distributed / installed under the project)
$IH_{Project}$	% of users reporting reduce in incidence of diarrhoea and water borne diseases etc. (improved health) in project
$SWQ_{Project}$	% WPS distributed / installed providing safe drinking water to beneficiaries in project
$AAC_{Project}$	Access to affordable and clean energy (% of operating WPS units under Project)
QE $IG_{Project}$	Quantitative Employment and income generation (Number of person (male and female) hired under project)
Water hygiene education campaigns	Hygiene campaigns carried out among project safe water end users
$X_{cleanboil,y}$	Proportion of project end-users that boil safe (treated, or from safe supply) water after installation of project technology
$HN_{p,y}$	Number of individuals per premises type p in the project boundary in year y
$N_{p,y}$	Accumulated number of premises type p with at least one individual project technology in year y
$U_{p,y}$	Usage rate of the project technology by premises type p during year y
$DP_{p,y}$	Average days the project technology is present for end-users in the premises p in year y

DNp,y	Average number of individual project technologies in each project premises type p in year y

The target population is institutions of Kenya. All the VPAs i.e., GS11289 to GS11305 (VPA 31 to VPA 47) is implemented in the same physical location of Kenya with same baseline scenario and technology and therefore the CME has chosen to apply across VPA sampling.
The CME has applied stratified random sampling for determining the usage rate of units distributed based on age as project technologies age over time and/or are replaced and accordingly calculate the sample size.

The CME requested for the deviation from GS/26/ with regards to the monitoring requirement of the WPS and the requirements of the methodology which got approved on 07/12/2021.

The CME has sought deviation for the current crediting period. Though the applied methodology para 4.2.2./8/ allows only 10 VPAs to be grouped together for across VPA sampling, CME has clubbed 30VPAs under current verification. Moreover, the sample size has been determined through 95/10 C/P, but the CME has applied maximum limit of 100 for the sample size in line with para 4.2.3. of the applied methodology/8/. The deviation form was checked to confirm the above/26/.

Detail of approved deviation:

Reference: Dev_184

Title: Deviation from ageing-based survey for WPS

Date of approval: 07/12/2021

Link: https://www.goldstandard.org/project-developers/standard-documents

The deviation was also requested for no units-based scale limit and lifespan of the units to be considering the renewal of cartridges/tablets. Thus, also removing the factor of aging of the product over the time.

CME requested to have project surveys for WPS stratifying each technology irrespective of their age and by grouping more than 10 small scale VPAs together. This was approved by GS as WPS system are not affected by ageing over time. The functioning of the WPS is dependent on filters/cartridges. Once the cartridges or filters are fully consumed and replaced with a completely new one making it revive their lifetime again.

The collection of monitoring data is done by trained personnel appointed by CME team. Usage related surveys and collection of water samples for water quality test has been done by the monitoring team. The monitoring (Surveys and Water Quality Tests) was conducted from 12/07/2022 to 02/08/2022/21/.

The sampling approach undertaken by CME is duly explained under section D.4 of the monitoring report /5/, which has been assessed by the verification team and found to be correct and in-line to the standard /13/.

Reliability and precision calculation:

The verification team has verified the ER calculation spreadsheets /15/ with the monitored data, where the actual achieved precision is calculated against the Guidelines outlined under “Standard for sampling and surveys for CDM project activities and Programme of Activities” v9.0 /13/ and confirms that the calculation of achieved reliability was done correctly.

All parameters of interest are included in the ER spreadsheet for the VPAs. These were checked for the input values as well as formula applied and were found consistent. The reliability (demonstration of precision achieved after the survey results) is depicted in the ER calculation sheets/15/ corresponding to final Monitoring Report /5/, which were also found correct.

	Thus, the verification team confirms that in all cases the reliability has been demonstrated and the results are reliable.
Findings	None
Conclusion	Sampling plan followed in the PoA and reported in monitoring report, ER sheet /5,15/ is in line with CDM guidelines for sampling and surveys /14/ and applied methodology /8/.

E.7. Assessment of data and calculations of emission reductions or net removals

E.7.1. Calculations of baseline value of each SDG Impact

Means of verification

The targeted SDG and its corresponding baseline estimate are given below:

Sustainable Development Goals Targeted	SDG Impact	Parameter description	Baseline estimate
SDG 1	No Poverty	Number of premises with at least one WPS distributed / installed under the baseline	0
SDG 3	Good Health and Well-Being	% Of users reporting reduction in incidence of diarrhoea and water borne diseases etc. in baseline (improved health)	0
SDG 6	Clean Water and Sanitation	% Users reporting safe water quality in baseline	4.44%
SDG 7	Affordable and Clean Energy	Access to affordable and clean energy (% of operating WPS units under Baseline)	0
SDG 8	Decent Work and Economic Growth	Quantitative Employment and income generation (Number of person (male and female) hired under Baseline)	0
SDG 13	Climate Action	CERs	379,129

For SDG 13. Climate Action, baseline emissions are calculated as follows:

$EF_{b} = SE_{w,b,y} * \sum(x_{f} * (EF_{b,f,CO2} * f_{NRB,f,y} + EF_{b,f,nonCO2})) \div 10^{9}$

Where:

EF_{b} = Emission factor for the use of fuel to obtain safe water in the baseline (tCO2e/L)

SEw,b,y = Specific energy required to boil water (kJ/L), to be calculated as per the paragraph below

xf = Proportion of fuel f used in the baseline (fraction determined based on an energy basis)

$EF_{b,f,CO2}$ = CO2 emission factor from use of fuel f (tCO2/TJ)

$EF_{b,f,nonCO2}$ = Non-CO2 emission factor arising from use of fuel f, when the baseline fuel f is biomass or charcoal (tCO2e/TJ). This parameter is omitted when f is a fossil fuel.

$f_{NRB,f,y}$ = Fractional non-renewability status of woody biomass fuel during year y (fraction). For biomass, it is the fraction of woody biomass that can be established as non-renewable. This parameter is omitted when f is a fossil fuel.

f= Index for baseline fuel

Calculations of specific energy required to boil water using the baseline technology (SEw,b,y) is as follows:

	SEw,b,y = 360.83/ηwb Where: 360.83 = Default amount of energy required to obtain 1 L of water after 5 minutes of boiling from a first principles approach kJ/l ηwb = Efficiency of the stoves for baseline water boiling (%). Weighted average of baseline stove types. The baseline emissions shall be calculated as follows: BEy = EFb × (1 – Cb – $X_{\text{cleanboil,y}}$) × Q_y × $M_{q,y}$ Where: BEy = Baseline emissions from the use of fuel to obtain safe water in the baseline (tCO2e) Cb = Proportion of project end-users who in the baseline were already using a safe water supply that did not require boiling (%) Xcleanboil,y = Proportion of project end-users that boil safe water in the project year y (%) Q_y = Quantity of safe drinking water provided by the project in year y (L) $M_{q,y}$ = Modifier for the water quality in year y In the case of IWT, the quantity of safe drinking water provided by the project Qy is determined as follows $Q_y = \sum N_{p,y} \times U_{p,y} \times QPW_{hh,p,y} \times DP_{p,y}$ Where: $N_{p,y}$ = Number of premises type p with at least one project technology in year y $U_{p,y}$ = Usage rate of the project technology by premises type p during year y (%) $QPW_{hh,p,y}$ = Volume of drinking water per premises p per day in year y (L) $DP_{p,y}$ = Days the project technology is present for end-users in the premises p in year y The volume of drinking water per premises is determined by considering whether the capacity of the project device is sufficient to provide at least the default amount of drinking water, as follows: $QPW_{hh,p,y}$ = min ((qi × $DN_{p,y}$), (QPW_p × $HN_{p,y}$)) Where: qi = Capacity of the HWT or IWT individual project technology (L) $DN_{p,y}$ = Average number of individual project technologies in each project premises type p in year y $HN_{p,y}$ = Number of individuals per premises type p (e.g. household, school) in year y QPW_p = Volume of drinking water per person per day for premises type p (L) * average number of operational days in the year Applied the default value or monitored value through water consumption field tests in the project scenario, capped at 5.5 L per person per day The calculation of the baseline has been verified from the ER calculation sheet and was found correct and consistent.
Findings	No findings were raised.
Conclusion	The verification team verified that a) A complete set of data for the monitoring period was available and the verification of each monitoring parameter is elaborated under Section E.5 of this report. The complete monitoring data is also presented in the corresponding ER calculations sheet /15/ of final Monitoring Report /5/. b) The information provided in the monitoring report was cross checked with other sources, wherever appropriate and available, and such information is also included under Section E.5 of this report. c) The calculations of baseline emissions as presented in the corresponding

	ER calculations sheet /15/ of final Monitoring Report /5/ were checked and found to be consistent with the formulae and methods described in the registered monitoring plan of VPA-DD/10/, registered PoA-DD /9/ and the applied methodology /8/. d) All assumptions used in the emission calculations were found appropriate and therefore justified e) Appropriate emission factors, IPCC default factors and other reference values have been correctly applied. This has also been elaborated under Section E.5 of this report.

E.7.2. Calculations of project value of each SDG Impact

Means of verification

The targeted SDG and its corresponding project estimate are given below:

Sustainable Development Goals Targeted	SDG Impact	Parameter description	Project estimate
SDG 1	No Poverty	Number of premises with at least one WPS distributed / installed under the project	9,969
SDG 3	Good Health and Well-Being	% Of users reporting reduction in incidence of diarrhoea and water borne diseases etc. in project (improved health)	94.39%
SDG 6	Clean Water and Sanitation	% Users reporting safe water quality in project	94.39 %
SDG 7	Affordable and Clean Energy	Access to affordable and clean energy (% of operating WPS units under Project)	93.17%
SDG 8	Decent Work and Economic Growth	Quantitative Employment and income generation (Number of person (male and female) hired under Project)	17
SDG 13	Climate Action	CERs	0

For SDG 13. Climate Action, the project estimate is 0 as the project technology involves chlorination which does not require any fuel/ electricity use. The assessment team has reviewed the equations used in line with the VPA-DD and applied methodology. The calculation of the baseline has been verified from the ER calculation sheet /15/ and was found correct and consistent.

Findings	No findings were raised.
Conclusion	The verification team verified that a) A complete set of data for the monitoring period was available and the verification of each monitoring parameter is elaborated under section of this verification report. Also, the monitoring has been provided for the review in the ER calculation sheet /15/. b) The information provide in the monitoring report /5/ was cross-checked with other source, wherever appropriate.

E.7.3. Calculation of leakage GHG emissions

Means of verification	The verification team reviewed section B.6.1 of the VPA-DD/10/ and found that no potential leakage is present. The leakage assessment has been done in line with the methodology “Emission reductions from Safe Drinking Water Supply” Version 1.0. As reported, the leakage shall be reassessed after the end of second year of crediting period since, the monitoring frequency for leakage is “every two years”.
Findings	No findings were raised.
Conclusion	Leakage assessment was found to be done in line to the applied methodology and verified from VPA-DD /8,10/.

E.7.4. Calculations of net benefits for each SDG Impact

Means of verification

Net benefits achieved under each SDG Impact are tabulated below:

SDG	SDG Impact	Baseline estimate	Project estimate	Net benefit
1	No Poverty	0	9,969	9,969
3	Good Health and Well Being	0	94.39%	94.39%
6	Clean Water and Sanitation	4.44%	94.39 %	89.95%
7	Affordable and Clean Energy	0	93.17%	93.17%
8	Decent Work and Economic Growth	0	17	17
13	Climate Action	379,129 tCO2e	0	379,129 tCO2e

Below are the equations used for calculating net benefits for each SDG Impact

Net Benefit (SDG 1) = $ABS_{Project} - ABS_{Baseline}$
Net Benefit (SDG 3) = $IH_{USERS,Project} - IH_{,Baseline}$
Net Benefit (SDG 6) = $SWQ_{Project} - SWQ_{Baseline}$
Net Benefit (SDG 7) = $AAC_{Project} - AAC_{Baseline}$
Net Benefit (SDG 8) = QE $IG_{Project}$ - QE $IG_{Baseline}$

The emission reductions are calculated as follows:

$ERy = BEy - PEy - LEy$

Where:
ERy = Emission reductions in year y (t CO2e/yr)
BEy = Baseline emissions in year y (t CO2e/yr)
PEy = Project emissions in year y (t CO2e/yr)
LEy = Leakage emissions in year y (t CO2e/yr)

Findings

No findings were raised.

Conclusion

The verification team verified that

a) The complete data was available and is duly reported;
b) The description with regards to cross-check of reported data is included under respective parameters and its assessment has been done in section E.5 of this report
c) Appropriate methods and formulae for calculating baseline GHG emissions or baseline net GHG removals, project emissions and leakage emissions were followed
d) The total number of ERs achieved during the current monitoring period is 861,769 tCO2e.

E.8. Comparison of actual GHG ER value achieved during this monitoring period with estimated value

Means of verification

The value estimated in ex ante calculations of approved PoA-DD and VPA-DDs /9,10/ for the monitoring period and the actual values achieved during this monitoring period has been report in section E.5 of the monitoring report /5/.

VPA No.	Values estimated in ex ante calculation of approved PDD for this monitoring period (tCO2e)	Actual values achieved during this monitoring period (tCO2e)
13-GS11289	27,561	22,526
13-GS11290	27,561	23,143

	13-GS11291	27,561	23,586
	13-GS11292	27,561	23,751
	13-GS11293	27,561	25,250
	13-GS11294	27,561	25,834
	13-GS11295	27,561	24,459
	13-GS11296	27,561	23,690
	13-GS11297	27,561	24,245
	13-GS11298	27,561	23,127
	13-GS11299	27,561	24,697
	13-GS11300	27,561	26,002
	13-GS11301	27,561	23,020
	13-GS11302	27,561	24,093
	13-GS11303	27,561	24,396
	13-GS11304	27,561	9,965
	13-GS11305	27,561	7,345
	Total	**468,537**	**379,129**

The emission reductions have been correctly calculated in accordance with the applied methodology /8/. The ER calculation sheet /15/ were reviewed and all the values report in monitoring report is consistent with the ER sheet.

Verified and certified emission reductions as per commitment period:

Commitment period	Amount achieved
01/01/2022– 30/06/2022	379,129 tCO2e

Findings	No findings were raised.
Conclusion	The verification team confirms that a) The actual values of achieved ERs during this monitoring period has been correctly reported in the monitoring report. b) The total number of ERs achieved during the current monitoring period is 379,129 tCO2e.

E.9. Safeguarding principles

Means of verification	There was no safeguarding principle assessed 'Yes' or 'Potentially' and added to this monitoring plan.
Findings	None
Conclusion	Not applicable.

E.10. Stakeholder Inputs and Legal Disputes

Means of verification	There were no legal disputes, and no inputs/ grievances were received for this monitoring period. CME collects feedback on a regular basis and during on-site visit, it was found that none of the end-users have issues with the WPS system. No negative feedback was received during on-site visits to the institutions. PD confirmed in section G.3 of the MR that the is in compliance with the Host Country's legal, environmental, ecological, and social regulation and has not reported any challenges related to the same in the concerned monitoring period.
Findings	No findings were raised.
Conclusion	The validation team confirms that the PoA receives no negative feedback on the WPS units distributed to institutions.

E.11. Continuous input and grievance mechanism

Means of verification	The CME has provided various means through which the end-users can contact them. The continuous Input or Grievance Expression Process Books is part of the project implementation and has been made available at office of Impact Water in Kenya. The stakeholder also has the option of contacting the CME via post or email to details provided below: Impact Water PO Box 1903-00606, Nairobi House #44, Muthithi Road Westlands, Nairobi. Contact no.: +256 790 911 934 Email: info@impactcarbon.org

	GS Contact (mandatory): help@goldstandard.org
Findings	No findings were raised.
Conclusion	The verification team confirms that the PoA receives no negative feedback on the WPS units distributed to institutions. The verification team confirms the expression book which is available in all sites & a working email ID, reflects the good practice in the host countries.

SECTION F. Internal quality control

The draft verification report prepared by the verification team was reviewed by an independent technical review team to confirm if the internal procedures established and implemented by Earthood were duly complied with and such opinion/conclusion is reached in an objective manner that complies with the applicable GS rules/requirements. The technical review team is collectively required to possess the technical expertise of all the technical area/sectoral scope the project activity relates to. All team members of technical review team were independent of the verification team.

The technical review process may accept or reject the verification opinion or raise additional findings in which case these must be resolved before requesting for registration. The technical review process is recorded in the internal documents of Earthood, and the additional findings gets included in the report. The final report approved by the technical reviewer is authorized by Managing Director and issued to the CME and/or submitted for request for registration, as appropriate on behalf of Earthood Services Private Limited.

SECTION G. Verification opinion

The verification of PoA “Improved Cookstove and Safe Water Programme” was performed based on rules and requirements defined by GS4GG Principles and Requirements and UNFCCC for the CDM program of activities. The purpose of this project activity is to provide safe and clean drinking water through dissemination of low GHG water purification technologies (WPS) to schools and other institutions in Kenya. Earthood Services Private Limited (Earthood), contracted by Impact Carbon, has performed the independent verification of the emission reductions for the GS PoA “Improved Cookstove and Safe Water Programme” (GSID: 11189) for the first monitoring period 01/01/2022– 30/06/2022 (Inclusive of both days) as reported in the Monitoring Report, Version 3.0 dated 01/03/2023.
Earthood confirms that the monitoring system is in place and the emission reductions are calculated without material misstatements. Project representatives ‘Impact Carbon’ and ‘Impact Water’ are responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the project activity.
The verification activities were conducted in accordance with ESPL’s CDM Quality Manual System as per the steps indicated under Section A of this report. The verification process has resulted in conclusion that the monitoring report is in compliance with applicable CDM and GS rules and regulations and in accordance with applied methodology, Emission reductions from Safe Drinking Water Supply version 1.0.

As a result, it is confirmed that the emission reductions achieved from the implementation of GS PoA “Improved Cookstove and Safe Water Programme" are correctly reported in the GS Monitoring Report, Version 3.0 dated 01/03/2023 and corresponding ER calculation sheets for the monitoring period 01/01/2022– 30/06/2022 (inclusive of both days) which are amount as 379,129 tCO2e.

SECTION H. Certification statement

Earthood Services Private Limited (Earthood), contracted by Impact Carbon, has performed the independent verification of the emission reductions for the GS PoA “Improved Cookstove and Safe Water Programme” (GSID: 11189) for the first monitoring period 01/01/2022– 30/06/2022 (Inclusive of both days) as reported in the Monitoring Report, Version 3.0 dated 01/03/2023.
Project representatives ‘Impact Carbon’ and ‘Impact Water’ are responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the programme of activity. It is our responsibility to express an independent verification statement on the reported GHG emission reductions from the project activity.

In our opinion, the GHG emissions reductions reported for the project activity for the period 01/01/2022 – 30/06/2022 (inclusive of both days) are fairly stated in the Monitoring Report, Version 3.0 dated 01/03/2023. The GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodology Emission reductions from Safe Drinking Water Supply version 1.0/8/ and the monitoring plan contained in the PoA-DD version 5.0 dated 25/05/2022. Earthood Services Private Limited is able to certify that the GS PoA “Improved Cookstove and Safe Water Programme” (GSID: 11189) during the

monitoring period 01/01/2022– 30/06/2022 (inclusive of both days) has achieved emission reductions amount to 379,129 tCO2e.

Verified and certified emission reductions as per commitment period:

Commitment period	Amount achieved
01/01/2022– 30/06/2022	379,129 tCO2e

		Amount Achieved					
Start Dates	**End Dates**	**VERs (tCO2e)**	**ABS (SDG1)**	**IH (SDG3)**	**SWQ (SDG6)**	**AACS (SDG7)**	**QE IG (SDG8)**
01/01/2022	30/06/2022	379,129	9,969	94.39%	89.95%	93.17%	17

Appendix 1. Abbreviations

Abbreviations	Full texts
General	
ACM	Approved Consolidated Methodology
AM	Approved Methodology
BE	Baseline Emission
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CME	Coordinating and Managing Entity
CL	Clarification Request
CO2	Carbon dioxide
CP	Crediting Period
DR	Desk Review
EB	Executive Board
EI	External Individual
ESPL	Earthood Services Private Limited
FAR	Forward Action Request
GHG	Green House Gas
GSC/GSP	Global Stakeholder Consultation Process
IPCC	Intergovernmental Panel on Climate Change
IR	Internal Resource
KP	Kyoto Protocol
LSC	Local Stakeholder Consultation Process
MoC	Modalities of Communication
MoV	Means of Verification
MP	Monitoring Plan
ODA	Official Development Assistance
PA	Project Activity
PCP	Project Cycle Procedure
PD	Project Developer
PDD	Project Design Document
PE	Project Emission
PoA	Programme of Activities
PoA DD	Programme of Activities Design Document
PS	Project Standard
RCP	Renewal of Crediting Period
RFR	Request for Registration
tCO2e	tonnes of Carbon di Oxide equivalent
TPH	Tonnes Per Hour
TR	Technical Reviewer
UNFCCC	United Nations Framework Convention on Climate Change
V	Version
VPA	Verified Project Activity
VVB	Validation and Verification Body
VVS	Validation and Verification Standard
Project Specific	
GS4GG	Gold Standard for Global Goals
LSC	Local Stakeholder Consultation
MoV	Means of Verification
SDG	Sustainable Development Goals
WPS	Water Purification System technology

Appendix 2. Competence of team members and technical reviewers

Competence Statement			
Name	Deepika Mahala		
Country	India		
Education	M. Sc. (Environment Management), GGSIP University B.Sc. Hons. (Chemistry), Sri Venkateshwar College, DU		
Experience	6 Years +		
Field	Climate Change		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	ACM0002, AMS.I.D., AMS.I.A, AMS.III.AV, AMS.II.G, AMS-II.C		
Local expert	YES (India, Bangladesh)		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert	YES (TA 1.2 & TA 3.1)		
Reviewed by	Shifali Guleria (QM)	**Date**	28/04/2022
Approved by	Kaviraj Singh (MD)	**Date**	28/04/2022

Competence Statement			
Name	Virginia Njeri		
Country	Kenya		
Education	Diploma (Business Management)		
Experience	7 Years		
Field	Administration		
Approved Roles			
Team Leader	No		
Validator	No		
Verifier	No		
Methodology Expert	No		
Local expert	Kenya		
Financial Expert	No		
Technical Reviewer	No		
TA Expert	No		
Reviewed by	Abhishek Mahawar	**Date**	01/03/2018
Approved by	Ashok Kumar Gautam	**Date**	01/03/2018

Competence Statement	
Name	Jahnabi Kalita
Education	M.Sc. Environment Management
Experience	1+ year

Field	Environment, Climate change		
Approved Roles			
Team Leader	Yes (VM)		
Validator	YES		
Verifier	YES		
Methodology Expert	NO		
Local expert	YES		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (X.X)	NO		
Reviewed by	Shifali Guleria, Quality Manager	**Date**	09/11/2022
Approved by	Deepika Mahala, Technical Manager	**Date**	09/11/2022

Competence Statement			
Name	Ashok Gautam		
Country	India		
Education	M. Sc. (Environmental Sciences) M. Tech. (Energy & Environmental Management)		
Experience	16 Years +		
Field	Energy, Climate Change & Environment		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	AMS-I.D., AMS-I.A., AMS-I.C., AMS-I.E, AMS-II.D., AMS-II.G., AMS-III.E., AMS-III.H., AMS-III.Q, AMS-III.Z., AMS-III.AV., AMS III.AR, AM0029, AM0025, AM0056, ACM0001, ACM0002, ACM0004, ACM0012, ACM0006, AM0018, ACM0017, ACM0009, AM0034, AMS.I.B, ACM0016, AMS-III.BL, AMS-II.L		
Local expert	YES (India)		
Financial Expert	YES		
Technical Reviewer	YES		
TA Expert	YES (TA 1.1, TA 1.2, TA 3.1, TA 13.1)		
Reviewed by	Shifali Guleria	**Date**	10/06/2022
Approved by	Deepika Mahala	**Date**	10/06/2022

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1.	GS	GS Principle & Requirements	Version 1.2	Others
2.	GS	GS Validation & Verification Body Requirements	Version 2.0	Others
3.	UNFCCC	Standard: CDM PS for PoA	Version 3.0	Others
4	UNFCCC	Standard: CDM VVS for PoA	Version 3.0	Others
5	CME	Monitoring report	Version 3.0 dated 01/03/2023	CME
6	GS	Monitoring report template	Version 1.1	Others
7	GS	Template Guide Monitoring report	Version 1.1	Others
8	GS	Emission Reductions from Safe Drinking Water Supply	Version 1.0	Others
9	CME	PoA-DD	Version 5.0 dated 25/05/2022	CME
10	CME	VPA-DDs GS11289, GS11290, GS11291, GS11292, GS11293, GS11294, GS11295, GS11296, GS11297, GS11298, GS11299, GS11300, GS11301, GS11302, GS11303, GS11304, GS11305	Version 6.0 dated 11/08/2022	CME
11	GS	GS Programme of Activitiy requirements	Version 1.2	Others
12	GS	Community Services Activity requirements	Version 1.2	Others
13	UNFCCC	Standard for Sampling and surveys for CDM project activities and programmes of activities	Version 9.0	Others
14	UNFCCC	Guidelines for sampling and surveys for CDM project activities and programmes of activities	Version 4.0	Others
15	CME	ER calculation sheet	Version 3.0 dated 01/03/2023	CME
16	CME	Table 3.18 Basic Report Based on 2015/16 Kenya Integrated Household Budget Survey	March 2018	CME
17	CME	VPA implementer and CME contract	30/06/2021	CME
18	Medentech	Manufacturer's specifications documents	13/05/2021	CME
19	CME	WQT Training certificates	2022	CME
20	CME	Training attendance records	08/07/2022	CME
21	CME	Filled Monitoring survey forms	12/07/2022 to 02/08/2022	CME
22	CME	Hygiene Awareness Campaign Report	-	CME
23	CME	Baseline survey sheet	-	CME
24	IPCC	IPCC default value for wood and charcoal: IPCC 2006 Guidelines for National Greenhouse gas inventories	2006	Others
25	C4 EcoSolutions	C4 EcoSolutions. Calculations of the fraction of non-renewable biomass (f_{NRB}) Kenya	-	CME
26	GS	Deviation request form	07/12/2021	CME
27	Google	Google maps	-	Other
28	CME	WPS distribution Database	-	CME
29	CME	Purchase order	-	CME
30	CME	Salesforce residual capacity calculator	-	CME

31	CME	Delivery notes	-	CME
32	CME	School academic calendar	-	CME
33	ESPL	Previous Verification Report	Version 2.2 Dated 17/10/2022	Others
34	CME	Water quality test reports	12/07/2022 to 02/08/2022	CME
35	VPA Implementer	Statement of Employees at Impact Water	-	VPA Implementer
37	CME	Random number generator screenshots	-	CME

Appendix 4. Clarification requests, corrective action requests and forward action requests

Table 1. Remaining FAR from validation and/or previous verification

FAR ID	01	**Section no.**	E.5.2	**Date :** 07/11/2022
Description of FAR				
PD to transparently demonstrate in the next Monitoring period and subsequent monitoring periods in the excel sheet how previously carried over treated capacity is allocated in the current monitoring period and subsequent monitoring period for cases where institutions were supplied with large quantities of UltraTab or UltraFlo. The continuous use of treated water and VER allocation from one monitoring period to the next must be transparent and traceable.				
Project participant response				**Date :** 09/11/2022
The treatment capacity carried over from previous monitoring period is specified in column Z of the tab: Installation database. This matches exactly with the capacity left at the end of previous monitoring period (column AQ of tab: Installation database, CP1 MP1 final ER calculator version 5.0 dated 26092022). Thus, the carry forward of the treatment capacity from previous monitoring period to current monitoring period is accurate and correct. Further for each supply made for a given school, the information on the delivery (date of delivery, quantity and product id) is already specified in the ER calculator, tab: Installation Database, columns AB:AE, and columns AH:AK). Additionally for all the monitoring samples, sample delivery notes for the concerned monitoring period have been submitted to VVB already. Lastly, the ER model has an inherent calculation logic built in, which calculates the treated water quantity (column AN) as minimum of capacity supplied and the treatment capacity demand (based on number of students, default consumption / day and operational days of a given school in the monitoring period). Also, if there is gap/delay in supply the model automatically discounts the ERs for days the schools is constrained by available/supplied capacity. Thus, the FAR is already addressed in the ER calculator.				
Documentation provided by project participant				
GS11189 VPA 31-47 Kenya WPS - MP2 ER sheet ver.2.0 09112022.xlsx GS11189 VPA 31-47 Kenya WPS – MP1 ER sheet ver. 5.0 26092022.xlsx				
DOE assessment				**Date:** 14/11/2022
PD has demonstrated treatment capacity of the previous Monitoring period in column Z of the tab: Installation database of the ER sheet and thus carried over the current monitoring period by transparent means. Therefore, the continuous use of treated water and VER allocation from the previous monitoring period to the current is transparent and traceable. Thus FAR#01 is closed.				

Table 2. CL from this verification

CL ID	01	**Section no.**	NA	**Date :** 28/10/2022
Description of CL				

PD is requested to provide the following documents for the current monitoring period (01/01/2022-30/06/2022): 1. HR records/ Sales and marketing records 2. Hygiene Awareness Campaign Report 3. Random generator screenshot 4. Grievance logbook 5. Training records
Project participant response **Date :** 09/11/2022
All requested documents are being submitted.
Documentation provided by project participant
Enumerator Training Records (training event pictures, training event attendance sheet and sample training certificate submitted to participants) Random No. Evidence (Random number generator snapshots for UltraTab and UltraFlo) Grievance Mechanism_GS11189 Kenya CP1 MP2_examples HR Record - Kenya number of employees Hygiene Awareness Campaign Report_2022 CP1 MP2 v2.0.
VVB assessment **Date:**14/11/2022
CME has provided all of the above requested documents. Hence CL#01 stands closed

Table 3. CAR from this verification

CAR ID	01	**Section no.**	NA	**Date :** 28/10/2022
Description of CAR				
1. PD is requested to add the Date of project design certification and Date of Last Annual Report under KPI in the MR inline MR template guidelines. 2. PD is requested to add the relevant FARs from the Deviation Request Form (dated 07/12/2021) for the current monitoring period under section B.1.1 of the MR.				
Project participant response				**Date :** 09/11/2022
1. Date of design certification has now been added under KPI in MR. *As per section 5.1 of the Principles and Requirements, annual reports are due until the end of next calendar year for which the verification is not completed.* The end date of last MP(MP1) is 31/12/2021. Hence, the annual report submission is due on 31/12/2022. Since the verification and performance review has already been concluded for MP1 hence no Annual report was submitted for MP1. Therefore, the date of the last annual report is not applicable. 2. All relevant FARs from from the Deviation Request Form (dated 07/12/2021) have now been added in section B.1.1 of the monitoring report				
Documentation provided by project participant				
GS11189 VPA 31-47 Kenya WPS - MP2 MR v2.0_09112022.docx				
VVB assessment				**Date:** 14/11/2022
1. PD has added the Date of project design certification under KPI in the revised MR inline MR template guidelines. While the date of last annual report is not applicable for the current monitoring period. 2. PD has added the relevant FARs from the Deviation Request Form (dated 07/12/2021) for the current monitoring period under section B.1.1 of the revised MR. Thus CAR#01 stands closed.				

CAR ID	02	**Section no.**	E.5.2	**Date :** 28/10/2022
Description of CL				
1. Under section D.2 of the MR, the source of the parameter, DNp,y is stated as “Refer tab “Installation database” column Q of the ER sheet”. However, Column Q, tab “Installation database” of the ER sheet is Supply / Installation Date. Please clarify how the number of individual project technologies in each project premises is determined by supply date. 2. In the ER Calculation sheet (cell:C18 and C20, tab: Assumptions & ER Values), the reference for parameter, “HNp,y” and “DPp,y” are stated as “Assumed for ex-ante calculation only, project usage survey will be conducted for ex post value “ and “Assumed for ex-ante calculation only. Sales/Distribution database will be used for ex post determination” respectively. Please clarify how the values of both the monitored parameters are taken based on assumption.				

'Project participant response	Date : 09/11/2022
1. Reference to column Q as the source of parameter $DN_{p,y}$ is a typographical error. Correct column has been referred now in the monitoring report. 2. Reference for parameter, "$HN_{p,y}$" and "$DP_{p,y}$" provided in ER Calculation sheet (cell:C18 and C20, tab: Assumptions & ER Values) were typographical error. The same have been revised In the ER Calculation sheet. Revised ER and MR sheet are being submitted.	
Documentation provided by project participant	
GS11189 VPA 31-47 Kenya WPS - MP2 MR v2.0_09112022.docx GS11189 VPA 31-47 Kenya WPS - MP2 ER sheet ver.2.0 09112022.xlsx	
VVB assessment	**Date:** 14/11/2022
1. The source of the parameter, DNp,y is revised as "Refer tab "Installation database" column S of the ER sheet in the revised MR which was consistently reported with the ER sheet. 2. The reference for parameter, "HNp,y" and "DPp,y" are revised as "Installation Database" in the revised ER sheet which was found to be appropriate. Thus, CAR#02 stands closed.	

Table 4. FAR from this verification

FAR ID	NA	Section No.		Date : DD/MM/YYYY
Description of FAR				
NA				
Project participant response				**Date :** DD/MM/YYYY
NA				
Documentation provided by project participant				
NA				
VVB assessment				**Date:** DD/MM/YYYY
NA				

there is no FAR from this verification.

Appendix 5. List of verified school population for the VVB on-site audit samples

No.	Interviewee		WPS technology	Verified No. of Boarding Students	Verified No. of Boarding Staff	Verified No. of Non-Boarding Students	Verified No. of Non-Boarding Staff
	School name	Institution ID					
1.	Pala Primary School-Kisumu	K1836224	Ultra-tab	0	0	650	16
2.	Omogwa D.O.K Primary School	K1818532	Ultra-tab	0	0	360	16
3.	Nyabigege D.O.K Primary School	K1818488	Ultra-tab	0	0	432	13
4.	Nyamagesa SDA Boarding primary school	K1841990	Ultra-tab	344	1	0	21

5.	Kiongongi DOK Primary School	K1828882	Ultra-tab	0	0	650	18
6.	Tendere DEB Primary School	K1817637	Ultra-tab	0	0	1300	34
7.	Getono SDA Primary School	K1836439	Ultra-tab	0	0	344	15
8.	MCK Lewa Downs Primary School	K1808255	Ultra-Flo	0	1	448	19
9.	Lower Chure Primary School	K1840154	Ultra-Flo	0	0	400	25
10.	Lower kihara primary	K1840872	Ultra-Flo	0	0	1140	29
11.	Muya Primary	K1846804	Ultra-Flo	0	0	1140	25